2026 STATE OF THE INDUSTRY:

Plant-based

meat, seafood, eggs, dairy, and ingredients

Table of contents

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About the series

The State of the Industry report series is GFI's annual deep dive into the rapidly evolving alternative protein landscape. This flagship series provides a global snapshot of the industry, synthesizing company landscape and product trends, investment and sales data, new scientific advancements, and public investment and regulatory updates that highlight industry progress.

Tracking the technological and adoption readiness of the cultivated, plant-based, and fermentation sectors is a useful method to evaluate progress toward competing on price, taste, and availability with conventional meat. Readiness can be determined by assessing the progress, challenges, and overall risk across categories such as scientific feasibility, engineering viability, innovation capacity, value proposition, market acceptance, and license to operate. This series summarizes the current state of these factors using real-world developments from the past year.

Access the full suite of 2026 State of the Industry reports here.

Important notes

- All figures are expressed in U.S. dollars where the $ symbol is used. Other global currencies are clearly marked.
- 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.
- An update to the report titles: In past years, GFI titled each State of the Industry report with the year covered in report content. Starting in 2026, the report titles now reflect the publication year (content timeframe remains the same).

Editor's note

The underlying case for plant-based meat—an agricultural innovation that has seen a renaissance in the last decade—has only strengthened: As global demand for meat continues to rise, risks to planetary and public health multiply.

Many governments, companies, and researchers are recognizing the need to diversify protein production on a planet being pushed to its limit. If we are to meet growing global demand for meat while addressing some of the world's biggest challenges within the next two critical decades, we can't simply ramp up business-as-usual meat production. While multiple interventions will be needed, plant-based meat—as well as cultivated and fermentation-derived meat—is an essential globally scalable solution.

Over the past decade, plant-based meat has proved its feasibility, but not yet its full competitiveness. While early-generation products demonstrated that plant proteins can replicate many of meat's attributes, the sector is still closing gaps necessary for mainstream adoption. In 2025, similar to other innovations in their early days, the field experienced both challenges and breakthroughs:

- While several notable mergers, acquisitions, and closures drew headlines, investments from public and multilateral players helped drive commercialization, with Europe leading the way.
- While the tightening funding environment proved challenging, new developments in sensory science brought taste parity for plant-based meat ever closer.
- While the EU passed labeling restrictions, many countries—including China, Denmark, Germany, Portugal, and Spain—are prioritizing plant-based foods in their national food strategies.

Then and now: Ten short years ago, the plant-based meat milestones of today may have seemed far-fetched. It can be grounding to stop and ask: How far have we come in a decade?

Since 2015, global retail sales of plant-based meat and seafood have tripled. The plant-based meat and seafood category was estimated at $2.2 billion in retail sales (including inflation) in 2015 and reached an estimated $6.6 billion in 2025, according to Euromonitor. In the past year, global retail dollar sales of plant-based meat, seafood, milk, yogurt, ice cream, and cheese increased by three percent from 2024; several major companies and brands leaned into the plant-based category, and increasing consumer interest in protein fueled product innovation.

Reaching taste and price parity remains a key driver for the growth of plant-based foods, and there's still work to be done. Relative to conventional meat production, the plant-based meat space is just taking root. With the right levels of support, the industry still has room to close the gaps on taste and price and to provide a compelling value proposition to consumers, which often centers around health.

The stakes are high, and accelerating mainstream adoption matters. Evidence that existing meat production exacerbates global challenges—from climate change to pandemic risk—is mounting. In December 2025, the UN Environment Programme published the Global Environment Outlook, 7th Edition. The report notes that alternative proteins have the potential to pay significant dividends for our environment.

Yes, hurdles remain. This report, *Plant-based meat, seafood, eggs, dairy, and ingredients,* details headline-grabbing hurdles like declining U.S. sales, labeling restrictions, and a difficult economic environment.

But the following pages also detail the less visible progress: the expansion of facilities producing plant-based protein ingredients and new milestones in cost and production efficiencies.

At GFI, a nonprofit funded by philanthropy, we're committed to charting a path forward that feeds growing global demand for meat in restorative, resilient ways. Our annual State of the Industry series—including this report—equips food system stakeholders with knowledge of the innovations and developments that got us further down that path in 2025.

Thank you to all those who are in this work alongside us, and as such, helping to build a thriving world, fed sustainably.

Photo credit: LikeMeat

Executive summary

In 2025, the plant-based meat sector experienced a mix of successes and struggles across the commercial, investment, technology, policy, and regulatory landscape. Major themes:

- **Sales declines, with spots of growth.** Global retail sales of plant-based meat, seafood, milk, yogurt, ice cream, and cheese totaled an estimated $28.9 billion in 2025, increasing 3% since 2024, according to Euromonitor. Zooming in to just plant-based meat and seafood, global sales were estimated at $6.6 billion in 2025, yet the category grew in some regions and declined in others.
- **The high-protein trend is continuing.** Consumer demand for protein is pushing companies to innovate and bring new high-protein foods to market. For example, **Danone** rolled out **Silk Protein**, a high-protein blend of the brand's almond and oat milks with added soy protein.
- **The investment landscape is tightening.** Companies operating primarily in the plant-based ecosystem raised $450 million in 2025, according to GFI analysis of data from Net Zero Insights (up from $342 million in 2024). It was an especially challenging year for smaller, emerging brands—particularly in the U.S.—where ongoing headwinds in plant-based meat continued to weigh on investor appetite.
- **Scientific progress was made on several fronts, but data sharing is a must.** Crop optimization and sensory performance advances were made, but greater shared, open-access ingredient and formulation data infrastructure is needed for continued progress.
- **Many governments are prioritizing plant-based foods, others are restricting them.** Multiple governments prioritized plant-based foods in their national food strategies, while others placed labeling restrictions on plant-based meat products, making it harder for products to compete.

	Bright spot	*Challenge*
Commercial landscape	**Innovation from major food brands: IKEA** cafeterias in the UK added plant-based pork sausages to their menus. **McDonald's India** launched Protein Plus, a plant-based protein "slice" (including some whey) as an addition to any burger. **The Kraft Heinz Not Company**, a joint venture of **Kraft Heinz** and **NotCo**, released plant-based mac and cheese cups.	**Reformulations to better meet consumer expectations:** A few companies are investing in improving existing plant-based meat products to enhance taste, texture, and nutritional profiles, including meeting clean-label and health standards.

Investments

Europe leads the way: Investments from public and multilateral players have also helped drive commercialization. In 2025, the **European Investment Bank** (EIB), backed by the EU's **InvestEU** program, provided a €20 million loan to **Heura Foods** to support R&D and scale-up investments. Other large-scale financings supported production expansion, such as **MATR Foods**' €40 million raise, with debt from EIB and participation from **Denmark's Export and Investment Fund**.

The tighter funding environment accelerates consolidation: At least 19 plant-based companies were bought out or acquired, reflecting consolidation of product portfolios, technology stacks, and brand equity. At the same time, multiple plant-based companies paused or ceased operations after struggling to secure follow-on financing. As capital coalesces around scalable platforms and differentiated brands, companies struggling to improve unit economics or demonstrate durable demand are increasingly driven to sell assets or IP or close their operations.

Science and technology

Scientific feasibility

Targeted breeding and technology development: A first-of-its-kind comprehensive review of breeding for plant-based proteins in pulse and legume crops was published by a global group of researchers led by Michigan State University, which reinforced how optimizing crops for digestibility, functionality, and flavor can reduce downstream processing complexity and costs, and ultimately add value to the consumer by enhancing nutritional value, accessibility, and sensory experience.

Different processing strategies affect nutritional quality: A summary paper fro a team at ETH Zurich unpacked how to "process better" when it comes to plant-based foods, designing streamlined production that optimizes for taste, price, and nutrition using less processed, more complex natural raw ingredients.

Engineering viability

Extrusion research continues to improve both performance and predictability: A collaboration between Korea University and the University of Massachusetts Amherst found that in-line salt-solution injection can enhance fibrous network formation and structure in high-moisture plant-based meat products.

Expanded characterization approaches: A growing body of research focused on improving tools to better understand how ingredient and process variables translate into sensory and structural outcomes—an important prerequisite for managing process complexity. Studies demonstrated the use of time-domain nuclear magnetic resonance to profile internal structure and cooking dynamics in plant-based burgers.

Innovation capacity

New initiatives on sensory science: Efforts to strengthen sensory validation continued through large-scale, open-access initiatives. NECTAR released its Taste of the Industry 2025 report, more than doubling the number of products, categories, and consumers tested compared to its 2024 study, making it the largest open-access consumer sensory study of plant-based meat to date.

The need for open-access ingredient and formulation data: Initiatives to reduce process validation risk increasingly emphasize the need for shared data infrastructure. A new European Cooperation in Science and Technology Action was launched to support the development of open-access databases containing comparable techno-functional data for food ingredients.

Government and regulation

Countries are prioritizing plant-based foods in their national food strategies: The Chinese government identified food system diversification and the exploration of novel food sources, including plant-based foods, as ongoing priorities.

Banning meat-related terms for plant-based foods in Europe: Following several months of debate and negotiations in 2025, EU policymakers agreed in March 2026 to ban the use of the word “meat” and 31 meat-related terms for plant-based, fermentation-enabled, and cultivated options despite consistent survey results demonstrating that European consumers support the use of these terms for plant-based products.

Conclusion

In 2025, product innovation pressed on, including scientific advances to improve flavor, texture, and nutritional profiles. With the plant-based meat industry operating in a more capital-constrained period, we have seen several company pivots and consolidations, along with some transitions from venture-driven experimentation to food-industry scale up. Many governments are prioritizing plant-based foods in their national food strategies to achieve a range of goals, from climate mitigation and food security to economic competitiveness and public health.

Despite near-term turbulence, most forecasts still project significant long-term growth for the sector. The underlying case for plant-based meat remains: rising protein demand, climate and land use pressures, and the need to diversify protein supply chains. To fully realize the planetary and public health benefits that come with mainstream adoption of plant-based meat and other alternative proteins, governments, industry, and the research community must prioritize support for innovation that can help these new foods reach more plates.

Commercial landscape

Overview

The plant-based meat, dairy, and eggs industry achieved significant growth over the past decade. Global retail sales of plant-based meat, seafood, milk, yogurt, ice cream, and cheese totaled an estimated $28.9 billion in 2025, increasing three percent since 2024, according to Euromonitor.* Europe, estimated at $10.1 billion, and Asia Pacific, estimated at $9.2 billion, account for the majority of global plant-based foods sales. Detailed retail data from SPINS sized the U.S. plant-based food market at $7.9 billion, double what GFI sized it to be in 2017, though representing a two percent decline from 2024.

While challenging economic and supply factors hindered some product innovation and marketing in 2025, several major companies and brands like **PepsiCo**, **Kraft Heinz**, **Babybel**, and **JELL-O** leaned in on the plant-based category. They focused on launching flavor-forward, familiar favorites made without animal products. Consumers' increasing interest in and demand for protein also fueled innovation and marketing around convenient products that put protein center-stage, including **Danone**'s Silk Protein ready-to-drink plant-based beverage. Select foodservice chains, including **McDonald's** and **IKEA** stores, also added new plant-based items to their menus.

In summary, 2025 proved to be a mixed year for the plant-based foods industry, with some regions and categories losing share and some seeing increased visibility and development propelled by taste and health trends.

**Euromonitor projections are annual estimates and may be subject to minor revision in subsequent releases, typically reflecting model enhancements or exchange-rate adjustments.*

Facilities

Recent facility openings across the plant-based food sector highlight a shift from early-stage innovation toward scalable commercialization. The United States and Europe had several openings, including dedicated plant-based innovation hubs and large-footprint production facilities.

Ingredient production and processing

Companies invested in new and expanded facilities to scale production of plant-based protein ingredients, address supply constraints, maximize local crops, and diversify plant protein sources.

Germany

Ingredient company **BENEO** established a new facility to process pulses for plant-based foods.

India

Singaporean plant-based protein ingredient company **RELSUS** opened a facility in India to produce clean, functional plant-based proteins in partnership with the Dutch ingredient company **Aminola**.

United States

Burcon NutraScience acquired a facility in Illinois and began commercial-scale production of their pea protein ingredient. The startup **Plantible Foods** opened their first U.S. commercial facility to manufacture protein extracted from the duckweed plant.

Innovation and manufacturing

New facilities reflect a continued focus on scale up, innovation, and specialized R&D capabilities for cost and production efficiencies.

France

The plant-based egg company **Yumgo** established a new facility to expand their innovation and production capacity.

Malaysia

The startup **Pure Mylk** opened an innovation hub to support the development of plant-based beverages.

The Netherlands

The food and flavoring corporation **DSM-Firmenich** opened a new plant-based innovation center focused on more sustainable alternative meat, fish, and dairy.

Spain

The plant-based cheese company **Quevana** opened a large-scale cashew cheese production plant.

United States

The food industry systems supplier **GEA** established a $20 million tech center in Wisconsin to help the alternative protein industry scale up, including plant-based, fermentation, and cultivated technologies. The plant-based steak company **Offbeast** opened a manufacturing plant in a former conventional chicken facility in Maryland.

Company landscape

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

Alphabetized

Brand	Parent company	Headquarters	Year founded
Alpro	Danone S.A.	France	1919
AdeS	The Coca-Cola Co.	United States	1892
Blue Diamond	Blue Diamond Growers	United States	1910
Coconut Palm	Coconut Palm Group Co. Ltd.	China	1956
Kikkoman	Kikkoman Corp	Japan	1917
Lactasoy	Lactasoy Co. Ltd.	Thailand	1950
Lolo	Wanxiang Sannong Co. Ltd.	China	2000
Oatly	Oatly Group AB	Sweden	1994
Private Label/Store Brand	N/A	N/A	N/A
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

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

Alphabetized

Brand	Parent company	Headquarters	Year founded
Beyond	Beyond, Inc.	United States	2009
Field Roast	Maple Leaf Foods, Inc.	Canada	1991
Gardein	ConAgra Brands, Inc.	United States	1919
Garden Gourmet/Hälsans Kök	Nestlé S.A.	Switzerland	1866
Impossible	Impossible Foods, Inc.	United States	2011
MorningStar Farms	Kellanova (formally Kellogg's)	United States	1906
Private Label/Store Brand	N/A	N/A	N/A
Quorn	Monde Nissin Corp.	Philippines	1985
Rügenwalder Mühle	Rügenwalder Mühle	Germany	1834
Tivall	Nestlé S.A.	Switzerland	1866
Yves Veggie Cuisine	The Hain Celestial Group, Inc.	United States	1993

Involvement by diversified companies

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

2025

✓ Previous activity ★ New activity in 2025

Company	Investment	Acquisition	Partnership	R&D and manufacturing
Ajinomoto	★		★	★
Berger Schinken				✓
Bunge		✓★		✓★
Cargill	✓		✓	✓
Coca-Cola				✓
Danone	✓	✓★	✓	✓★
Fuji Oil				✓★
General Mills	✓		✓★	✓
Hormel Foods				✓
JBS		✓★		✓
Kraft Heinz		✓	✓★	✓★
Lactalis				✓
Maple Leaf Foods		✓		✓
Nestlé S.A.	✓	✓	★	✓
PepsiCo	✓		✓★	✓
Sigma Alimentos			✓	
Smithfield				✓
Tyson Foods	✓			✓
Unilever			✓	✓

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

Note: Table 3 may not reflect the full alternative protein commercial landscape in Japan. Some private sector companies in Japan prefer not to be included in public industry lists for underdeveloped products.

New partnerships

Recent partnerships across the plant-based sector focus on cross-collaboration to accelerate taste improvement, product innovation, and scale up.

R&D and product development

Partnerships between startups, incumbents, and research institutions are accelerating product improvement, ingredient innovation, and early-stage commercialization across plant-based categories.

India

A collaboration between **CSIR-Central Food Technological Research Institute**, a premier food research organization, **McDonald's India**, and **Symega** led to the development and launch of "Protein Plus slice," a protein add-on, made with plant-based proteins and whey at McDonald's India.

Singapore and Thailand

The Singaporean startup **Fattastic Technologies** (2023 winner of GFI India's Innovation Challenge) began an R&D partnership with **Ajinomoto Thailand** to explore applications for their plant-based fat in better-tasting plant-based products.

United States

A coalition of companies and nonprofits in Minnesota—including **General Mills**, **Target**, the **University of Minnesota**, **SunOpta**, and the **Bühler Group**—launched a "protein catalyst" program supporting R&D, startup mentorship, and commercialization to bolster plant proteins. The U.S. dairy company **Schuman Cheese** and olive oil-based cheese start-up **Good Planet Foods** formed a joint venture with the goal of producing tastier plant-based cheese.

Mergers and acquisitions

Brazil

Large protein/meat producers Marfrig and BRF merged to form **MBRF Global Foods Company**, consolidating assets and expanding global scale. Both companies operate established alternative protein brands. Meta Foods acquired Brazilian plant-based brand **Mr. Veggy**, marking a strategic expansion of their footprint in the alternative protein market, adding a portfolio of vegan-certified products that include plant-based burgers, other meat analogs, and ready-to-cook items.

Scale-up manufacturing

Several partnerships focus on scaling production by combining novel technologies with established manufacturing platforms.

United States

The ingredient discovery company **Shiru,** a leader in AI, and the plant-based protein production **GreenLab** are partnering to scale manufacturing of plant-based proteins using GreenLab's corn expression system.

Global

Planethic Group AG (formerly **Veganz**) entered a global licensing agreement with United States-based **Vitiprints** to leverage their edible 2D-printing technology and expand international production and distribution of plant-based milks.

Product launches

Product launches in 2025 reflect the continued diversification of plant-based products, with innovation in formats, distribution in new markets, and participation from major and conventional food brands.

New and unique products

Brands introduced plant-based products in new formats, including whole-cut meats, leveraging new technologies and expanding occasions for consumers to choose plant-based foods.

- The Slovenian plant-based meat company **Juicy Marbles** released a high-protein, whole-cut plant-based lamb in the U.S. and Canada, expanding whole-cut options, which are currently underrepresented in the market.
- A new plant-based milk brand, **Maïzly**, launched non-GMO and allergen-free corn milk in the U.S.
- The Spanish plant-based meat company **Novameat** debuted plant-based pulled lamb and pork products, providing whole cuts for foodservice.
- German start-up **Project Eaden** launched their fiber-spun ham slices at German retailer REWE, using proprietary fiber spinning and compounding technology to replicate conventional meat's texture.
- **Steakholder Foods** launched plant-based fish kebabs and salmon patties in Israel, leveraging 3D-printing technologies to expand vegan seafood offerings.

Innovation from major food brands and retailers

- **Danone** rolled out **Silk Protein**, a high-protein blend of the brand's almond and oat milks with added soy protein.
- **IKEA** cafeterias added plant-based pork sausages from UK-based **THIS** to their menu.
- **McDonald's Canada** launched the McVeggie, featuring a patty made with carrots, green beans, zucchini, peas, soybeans, broccoli, and corn, and **McDonald's India** launched Protein Plus, a "protein slice" made with plant-based proteins and whey that can be added to any burger.
- **The Kraft Heinz Not Company**, a joint venture from **Kraft Heinz** and **NotCo**, released plant-based mac and cheese cups and a chipotle mayonnaise. **Kraft Heinz** also launched their first plant-based dessert with an oat milk JELL-O chocolate pudding. **NotCo** also collaborated with **PepsiCo** to release NotMayo Doritos and NotChicken Nuggets Flamin' Hot in Chile.

New markets, categories, and distribution

Asia and Africa

Food corporation **Ajinomoto** will manufacture and distribute plant-based meat products from the Australian plant-based meat company **v2food** under license in African and Asian markets.

India

Conventional dairy and grocery brand **Country Delight** forayed into plant-based products for the first time with the launch of their new oat beverage.

Photo credit: Beyond Meat

United States

The conventional dairy cooperative **Organic Valley** entered the plant-based milk market with the launch of a range of oat milk creamers in U.S. retail. Nonprofit **Greener by Default** expanded their **Sodexo partnership** to bring their plant-based patient meal program to all U.S. hospitals Sodexo serves. **Eat Just**, makers of JUST Egg, debuted a new breakfast scramble on American Airlines in-flight menus and entered the plant-based meat category with their plant-based chicken.

United States and Europe

Eat Just's JUST Egg launched in Europe through a strategic partnership with the Vegan Food Group.

United States and United Kingdom

British plant-based egg brand **Crackd** entered the U.S. retail market, expanding choices for consumers in the plant-based egg category.

Product reformulation

A few companies are investing in improving existing plant-based meat products to enhance taste, texture, and nutritional profiles to better meet consumer expectations.

- **Lidl Netherlands** invested in reformulating their lines of plant-based meats intended to improve taste, texture, and nutritional value to meet higher appeal and health standards.
- **Beyond Meat** reformulated some products in the UK to shorten ingredient lists and meet clean label standards.

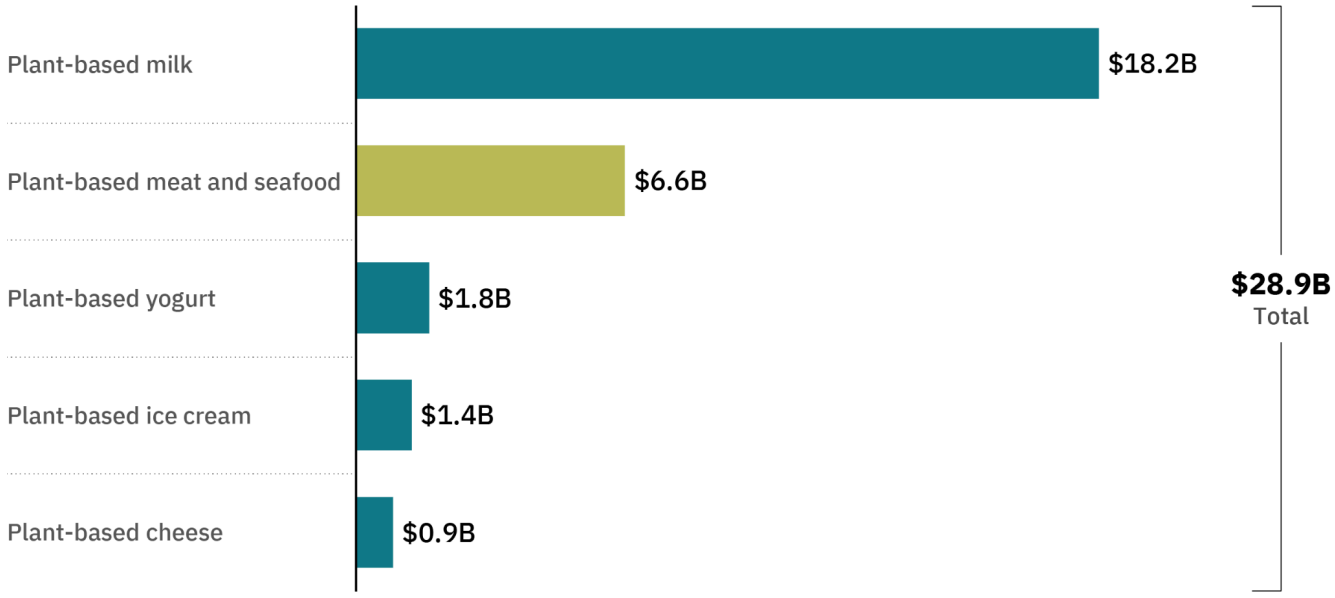
Sales

Overview: Global retail

The plant-based food market is growing globally. Retail sales of plant-based meat, seafood, milk, yogurt, ice cream, and cheese totaled an estimated $28.9 billion worldwide in 2025, according to Euromonitor. This represents a three percent increase in retail sales (including inflation) from 2024.

- **Global retail plant-based meat and seafood market:** Estimated at $6.6 billion, up approximately 8% in retail sales, including inflation, and 4% in inflation-adjusted retail sales from 2024, primarily driven by growth in Europe. Sales volume (tonnes) increased 3% globally, indicating volume growth drove overall sales. Europe and North America led retail sales, accounting for over 80% of global plant-based meat and seafood sales in 2025.
- **Global retail plant-based dairy category:** Valued at $22.7 billion, with the majority of sales associated with plant-based milk, experienced 2% growth in 2025, while sales volume (tonnes) were flat in 2025. Asia Pacific was estimated to account for over one-third of plant-based dairy sales, followed by Europe and North America.

Figure 1. Global plant-based foods retail sales estimates by main category ($ USD)
2025



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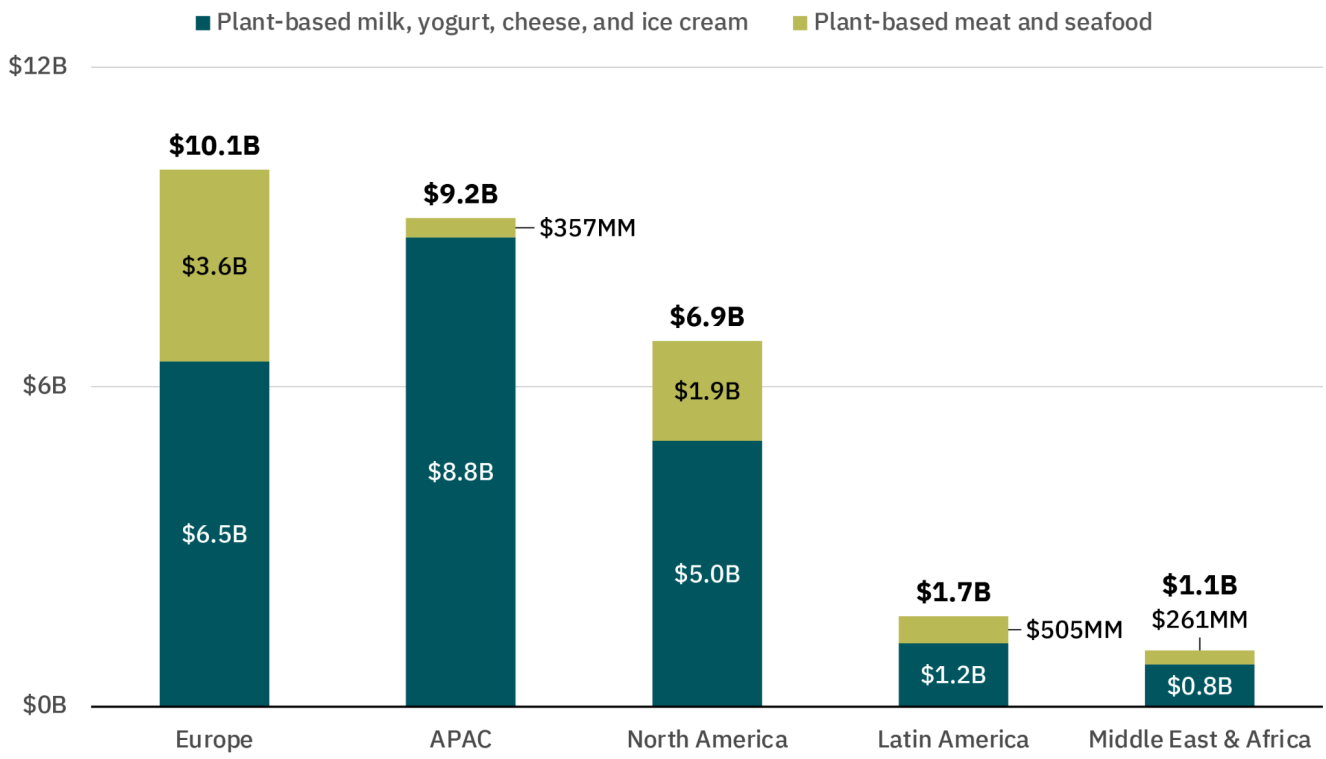
Staple foods – Meat and Seafood substitutes; Snacks – Plant-based ice cream; Dairy Products and Alternatives. Retail Value RSP, Current Prices (includes inflation).

Figure 2. Global plant-based foods retail sales estimates by region ($ USD)
2025



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Staple foods – Meat and Seafood substitutes; Snacks – Plant-based ice cream; Dairy Products and Alternatives. Retail Value RSP, Current Prices (includes inflation).
*APAC includes both the APAC and Australasia regions as defined by Euromonitor.

Given the concentration of plant-based meat sales in Europe and the United States (78 percent of dollar sales in 2025 according to Euromonitor estimates), and because these regions have relatively broad availability of sales data from real-time transaction tracking, GFI has prioritized detailed analysis of sales in these regions.

Europe sales

GFI Europe tracks retail sales of plant-based foods across key European countries and publishes analyses annually. The most recent available data can be found on the GFI Europe plant-based sales webpage.

Overview: U.S. sales

The U.S. retail plant-based food market was worth $8 billion in 2025 according to SPINS, a slight decline of two percent compared to 2024, but still about twice as large as 2017 when GFI sized the market at $3.9 billion. This includes plant-based meat, dairy, and eggs, as well as other plant-based categories like protein powders and liquids, tofu, meals, and baked goods.

The plant-based category was impacted by evolving consumer expectations around taste, price, and health, among other factors, in 2025. Lower consumer confidence and tariff impacts led to increased consumer concern about spending and challenging pricing dynamics for several plant- and animal-based categories.

According to the U.S. Department of Agriculture, overall food prices rose 3.1 percent in 2025. Despite higher than average price increases for some animal-based categories like beef, plant-based categories were still priced at significant premiums to their conventional counterparts. Consumer research continued to show that price and taste gaps were the top barriers to consumers choosing plant-based options.

Despite these challenges, it's clear consumers remain interested in plant-based products. Both the number of households purchasing plant-based foods and the percentage doing so more than once remained steady in 2025, according to SPINS. GFI research in 2025 found that more than half of all U.S. adults find plant-based meat appealing and are at least somewhat likely to eat it. Growth in select segments and products reflects strategies that may be working to reach consumers today, including tapping into growing consumer demand around health (see Plant-based bright spots and opportunities).

Key insights from 2025

- **U.S. plant-based food retail sales totaled $7.9 billion in 2025:** Sales and units declined from 2024, down 2% in dollars and 3% in units.
- **Retail category performance revealed growth in select categories:** Several plant-based categories grew in U.S. retail, including plant-based creamer, yogurt, ready-to-drink beverages, protein powders and liquids, bars, baked goods and other desserts, and tofu, tempeh, and seitan. While the plant-based meat and seafood and plant-based milk categories declined overall, select formats grew, including plant-based meat shreds, chunks, and strips, as well as soy and coconut milks.
- **Plant-based price gaps benefited from conventional price increases:** Conventional meat prices increased more than plant-based meat prices across several categories in 2025. This was particularly notable for beef, where plant-based beef now has an 8% price premium over conventional beef, compared to the 14% premium in 2024.
- **Plant-based milk and creamer grew in foodservice, as did select plant-based meat formats:** In U.S. foodservice, plant-based milk and creamer had continued strong growth (up 14% and 3% in pound [lb] sales, respectively, in 2025). Plant-based protein sales were down overall but select segments and formats grew, including pork analogs and chicken nuggets, meatballs, and chorizo.

U.S. retail

Based on retail sales data commissioned from SPINS, total U.S. food grew three percent in dollar sales while overall units remained relatively flat in 2025, indicating steady consumption at elevated prices. Conventional meat and seafood grew about one percent in unit sales, while conventional milk was almost flat, growing at less than one percent. Some conventional dairy and protein categories experienced unit growth over five percent, including yogurt and protein liquids and powders, likely fueled at least in part by consumer interest in protein.

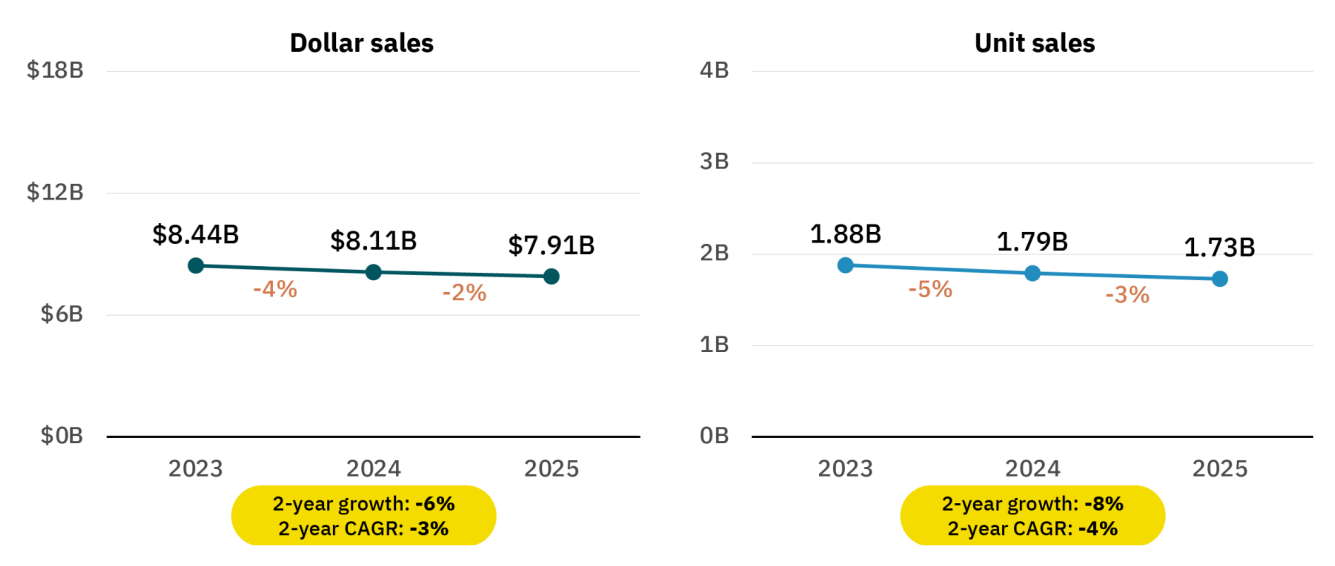
Plant-based meat and seafood sales were $1 billion in 2025. Dollar sales were down 10 percent and unit sales were down 11 percent versus 2024. However, some segments experienced growth, including the shreds, chunks, and strips formats. Plant-based meat and seafood remained the second-largest plant-based category by dollar sales and accounted for just under one percent of total meat retail sales, including packaged and random-weight products.

- Within the plant-based sector, plant-based milk remained the largest category, worth $2.7 billion in 2025, and accounting for a 13% share of total retail milk sales. Sales declined 2% in 2025, but select formats like soy (+4%) and coconut (+27%) grew in dollar sales. Coconut also grew over 20% in unit sales in 2025. Certain brands also experienced strong growth; five of the 10 largest brands accounted for 29% of plant-based milk dollar sales in 2025 and collectively grew 12% in dollar sales.
- Several other plant-based categories experienced growth in 2025: plant-based creamer; yogurt; ready-to-drink beverages; bars; tofu, tempeh, seitan; and plant-based baked goods and other desserts. Sales growth in plant-based yogurt, ready-to-drink beverages, bars, and baked goods and desserts was even stronger in the natural channel, which includes retailers with a significant share of sales from health and wellness and natural products.

There's meaningful near-term growth potential by increasing purchase frequency among existing plant-based meat and seafood buyers. The average household who purchased plant-based meat and seafood bought it about once a month (11.7 units per year) in 2025; doubling that to twice a month could unlock roughly $1 billion in additional sales.

Photo credit: Chunk Foods

Figure 3. Plant-based foods market, U.S. retail
2023-2025



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.

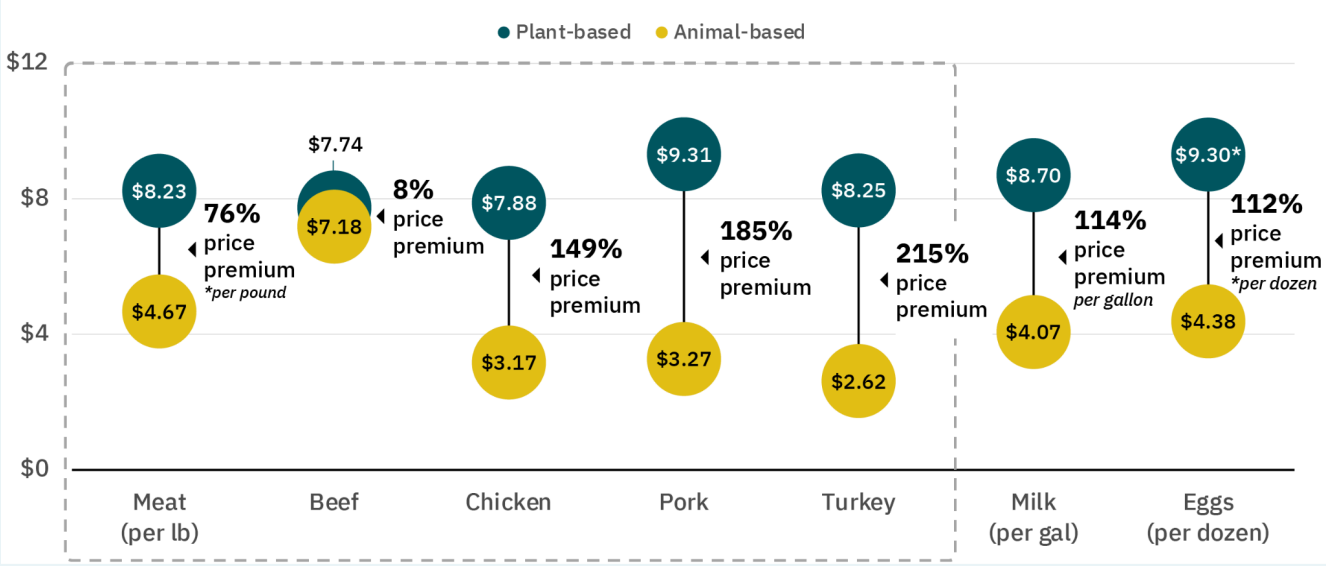
Source: Total market = SPINS Natural Supermarket Channel + SPINS Conventional Multi Outlet Channel + SPINS Convenience Channel (powered by Circana) | 52 Weeks Ending 11-30-2025

Despite price fluctuations and increases across several conventional categories, most plant-based categories were still priced, on average, two to four times higher than conventional counterparts on a per-pound, per-gallon, or per-dozen basis in 2025. With the cost of food increasing 3.1 percent in 2025, consumers may be considering if plant-based products are worth the trade up.

Within plant-based, there was a small decrease in the average price gap for plant-based meat, largely driven by increases in conventional beef prices. Plant-based beef cost eight percent more than conventional beef in 2025, compared to 14 percent more in 2024, which may position the category better for future growth.

Figure 4. Plant-based vs. animal-based price per weight comparison

2025



* Per dozen prices for plant-based eggs estimated using the egg "equivalent" amount from product packaging.

Source: Plant-based meat, milk, and egg prices are based on the custom plant-based categories created by GFI & PBFA from SPINS data year ending 11-30-2025. Animal-based meat prices are based on data for fresh meat subcategories from Circana, last 52 weeks, year ending Nov 2025. Animal-based milk and egg prices from U.S. Bureau of Labor Statistics and are averaged from monthly Dec 2024-Nov 2025 data.

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

2024-2025

Plant-based category	2025 dollar sales	1-year dollar sales growth *(2024–2025)*	2025 unit sales	1-year unit sales growth *(2024–2025)*	Average retail price change *(2024–2025)*
Milk	$2.7 B	-2%	684 MM	-5%	2%
Meat and seafood	$1.0 B	-10%	173 MM	-11%	1%
Creamer	$761 MM	2%	154 MM	2%	0%
Protein liquids and powders	$462 MM	2%	30 MM	-1%	3%
Meals	$432 MM	-12%	84 MM	-13%	1%
Yogurt	$429 MM	7%	144 MM	1%	6%
Bars	$333 MM	16%	78 MM	9%	6%
Ice cream and frozen novelty	$328 MM	-8%	60 MM	-9%	0%
Butter	$318 MM	-4%	79 MM	-3%	-1%
Ready-to-drink beverages	$297 MM	12%	73 MM	13%	-1%
Tofu, tempeh, and seitan	$223 MM	1%	75 MM	2%	-1%
Cheese	$197 MM	-10%	39 MM	-8%	-2%
Baked goods and other desserts	$136 MM	9%	22 MM	9%	0%
Cream cheese, sour cream, and dips	$113 MM	-15%	21 MM	-14%	-1%
Condiments and dressings	$58 MM	-19%	9 MM	-21%	3%
Eggs	$47 MM	3%	7 MM	-4%	8%
Total	**$7.9 B**	**-2%**	**1.7 B**	**-3%**	**1%**

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 Supermarket Channel + SPINS Conventional Multi Outlet Channel + SPINS Convenience Channel (powered by Circana) | 52 Weeks Ending 11-30-2025

Sixty percent of U.S. households purchased plant-based foods in 2025, consistent with 2024, and 75 percent of them purchased plant-based foods more than once last year. Repeat rates (the percentage of households buying more than once) have remained relatively steady over that time. About four in 10 households purchased plant-based milk in 2025, the highest penetration among plant-based categories.

Table 5. Purchase dynamics for plant-based categories

2025

	Household penetration	Repeat rate
Total plant-based foods	**60%**	**78%**
Milk	38%	75%
Meat and seafood	11%	62%
Yogurt	7%	57%
Cheese	4%	52%
Eggs	1%	41%
Ice cream and frozen novelties	9%	52%
Creamer	14%	65%
Butter	10%	48%
Tofu, tempeh, and seitan	7%	57%

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 11/30/2025.

U.S. plant-based meat bright spots and opportunities

Plant-based meat and seafood retail sales were $1 billion in 2025, a decline of 10 percent from the prior year. While the category has faced headwinds in recent years, it continues to evolve to meet consumer expectations around taste and price and deliver a compelling switching proposition. Segments of the category that performed better than average in retail in 2025 reveal strategies that may be working to reach consumers today.

Proliferation of flavored products

Plant-based meat and seafood products with added flavors (Asian, Mexican, spicy) were among the fastest-selling within the category in 2025, reflecting consumer interest in bold flavor profiles seen across retail and foodservice. These products may appeal to consumers by providing a familiar and craveworthy taste reference, countering potential taste concerns or uncertainty, as well as offering enhanced convenience.

Growth in shreds, chunks, and strips

The shreds, chunks, and strips format experienced eight percent growth in unit sales (14 percent growth in the natural channel), driven by strong performance across several top brands and products. These products are a form of whole muscle meats, which are among the most popular animal-based meat cuts and have traditionally been underrepresented among plant-based meat and seafood products. Product format expansion is one way to increase the range of occasions when consumers consider plant-based meat.

Products turning faster in the natural channel

Plant-based meat and seafood dollar velocity improved three percent and unit velocity improved one percent in the natural channel, which includes retailers with a significant share of sales from health and wellness and natural products. It's notable that almost half (48 percent) of plant-based meat and seafood sales in the natural channel came from the refrigerated section, where category velocities tend to be higher in general, versus less than a third (28 percent) for the total market.

Opportunity around health

GFI research in 2025 that incorporated validated sales data with a consumer survey revealed that consumers who perceive plant-based meat to deliver better on key health attributes spend more on it. Qualitatively, the impact of this can be seen by looking at products that experienced sales growth in 2025. For example, this includes products that make differentiated claims around low saturated fat, have heart health certifications, or have shorter than average ingredient lists. The consumer research also identified opportunities around protein, fiber, and having no antibiotics or hormones. While the value of specific attributes or claims will be brand- and product-specific, these trends reinforce the role that health can play in consumers' choice of plant-based meat.

U.S. foodservice

The total U.S. foodservice sector experienced three percent growth in dollar sales and one percent growth in pound (lb) sales in 2025, according to Circana's data on total food operator purchases from broadline distributors (tracked, high volume distributors). Conventional meat and milk sales grew about double that of the foodservice sector.

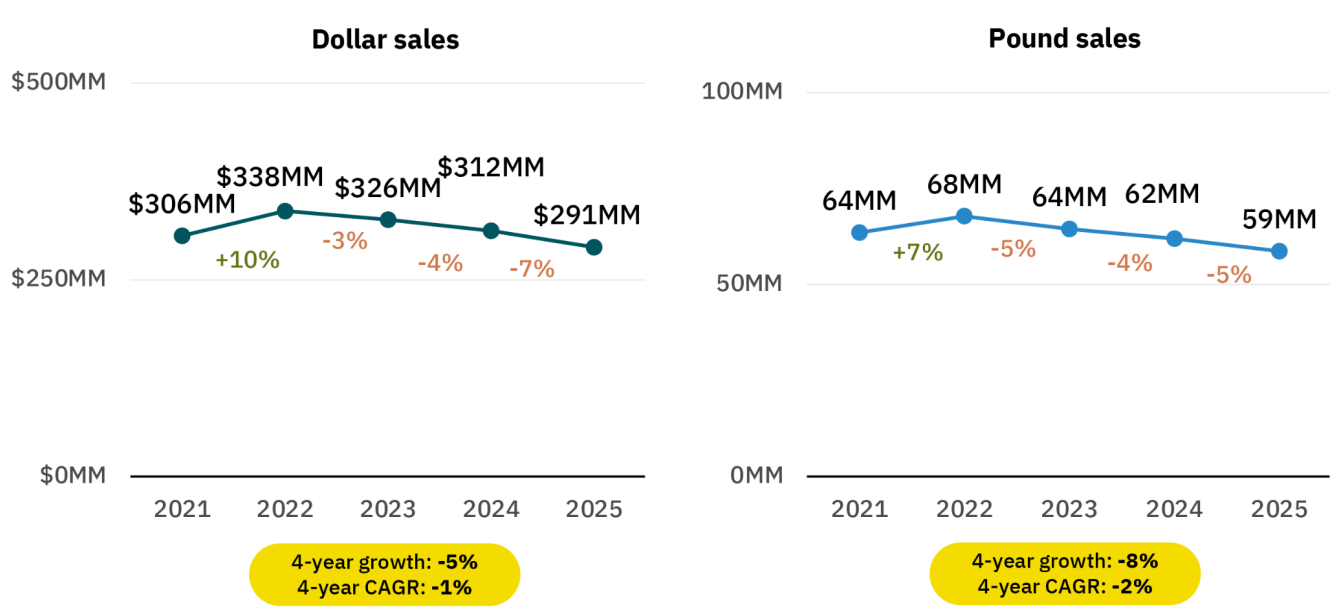
For the plant-based protein category in foodservice (which includes analog plant-based meat and seafood products, tofu, tempeh, and grain/nut/veggie items such as black bean burgers), total broadline distributor sales were estimated at $291 million and declined seven percent in dollars and five percent in pound (lb) sales in 2025.

However, there were notable pockets of growth. Pork analogs saw three percent growth in dollar and pound (lb) sales driven by breakfast sausage, chorizo, and pork crumble products. Other formats that experienced growth included plant-based chicken nuggets, meatballs, chicken patties, hot dog links, and chicken filets. Analog products continued to account for more than half of plant protein pound (lb) sales, reflecting consumer interest in products that mimic conventional meat.

Plant-based milk experienced significant growth in foodservice, reaching $288 million in broadline distributor sales, up 16 percent in dollars and 14 percent in pound (lb) sales, and accounting for a 13 percent pound share of total milk. Plant-based creamer was also a sizable and growing category at $189 million in sales, with dollars up four percent and pound (lb) sales up three percent. The growth in plant-based milk and creamer is likely due in part to major foodservice operators removing surcharges on plant-based dairy, effectively eliminating the price gap, starting in late 2024.

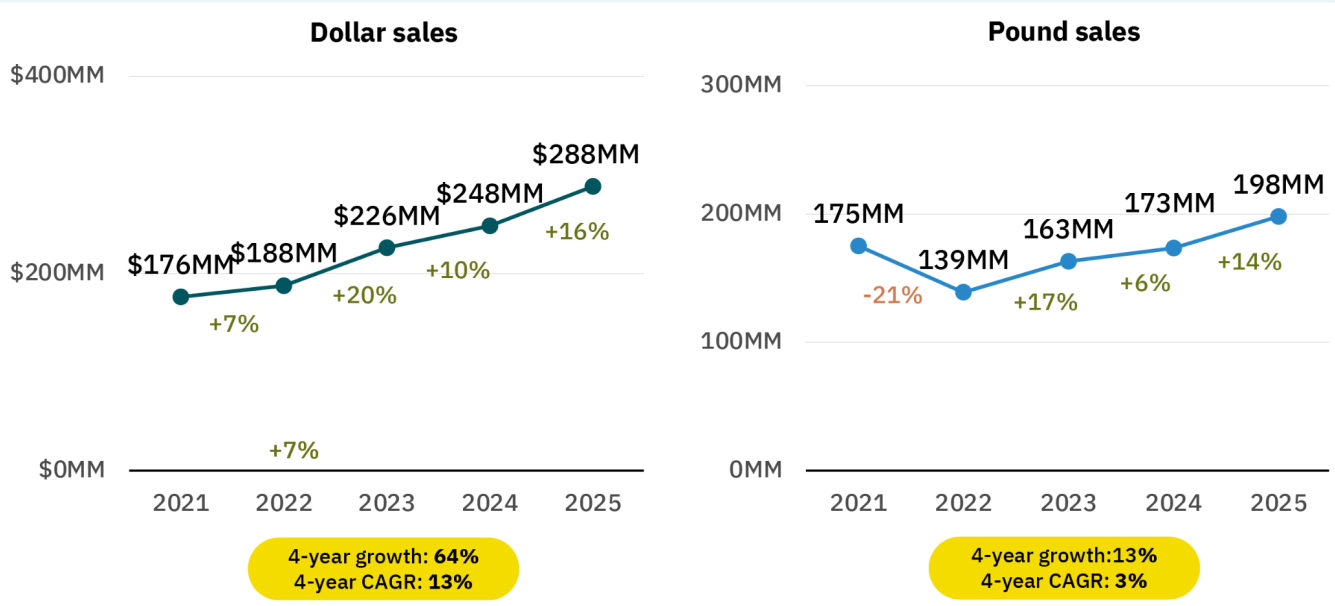
Photo credit: Upton's Naturals

Figure 5. Plant-based proteins market, U.S. broadline distributor foodservice sales
2021-2025



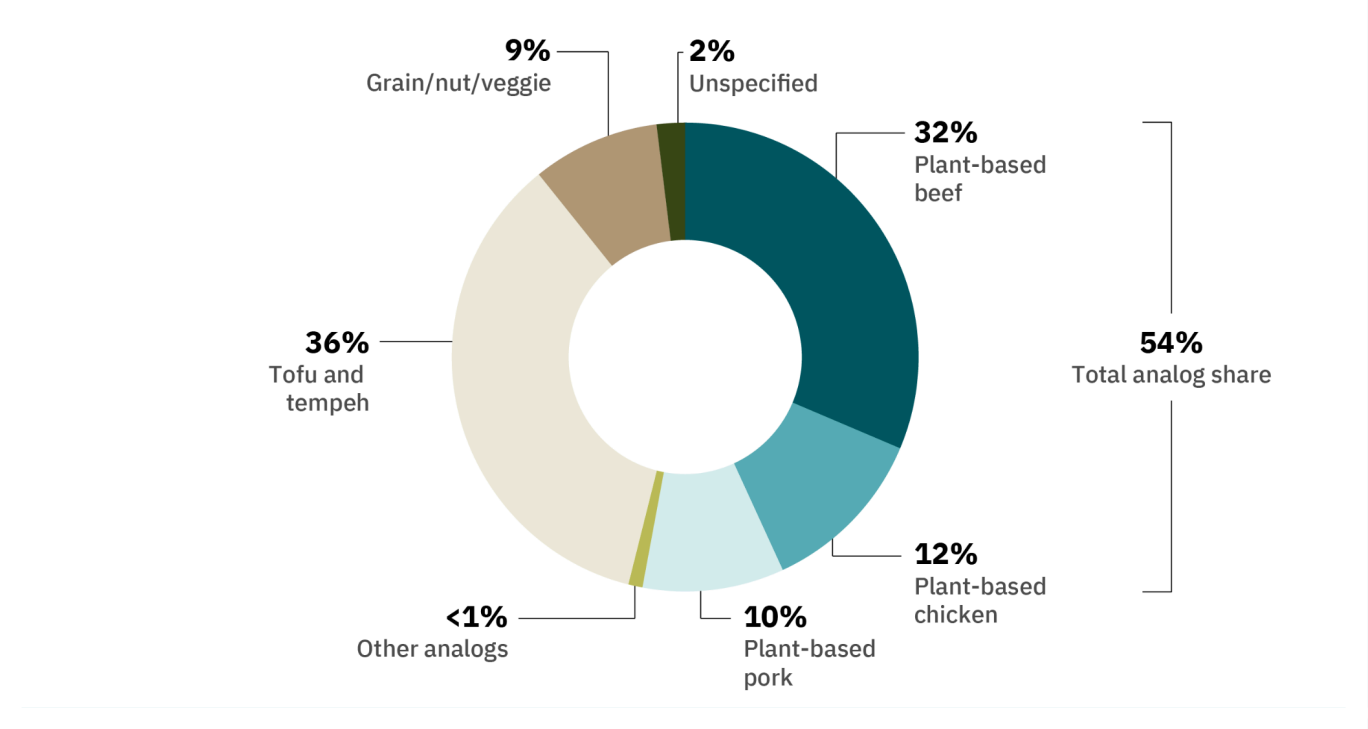
Source: Circana/SupplyTrack, U.S. broadline distributor foodservice sales. Product Class: Plant-based proteins (analogous meat alternatives, grain/nut/veggie alternatives, tofu/tempeh).
Dollar and pound sales are 12 months ending December 2025 vs. four prior years.

Figure 6. Plant-based milk market, U.S. broadline distributor foodservice sales
2021-2025



Source: Circana/SupplyTrack, U.S. broadline distributor foodservice sales. Product Class: Plant-based milk.
Dollar and pound sales are 12 months ending December 2025 vs. four prior years.

Figure 7. Share of plant-based protein pound sales from U.S. broadline distributors
2025 pound (lb) sales to distributors



Note: Based on product substitution type
Source: Circana/SupplyTrack, U.S. broadline distributor foodservice sales. Product Class: Plant-based proteins (analogous meat alternatives, grain/nut/veggie alternatives, tofu/tempeh).
Dollar and pound sales are 12 months ending December 2025 vs. four prior years.

While overall plant-based protein sales were down, there was growth among noncommercial operators, which accounted for 41 percent of the total dollar share of broadline distributor foodservice sales of plant-based proteins. Education and healthcare were the largest noncommercial segments, making up about one-third of plant-based protein sales. Sales growth was also seen in the business and industry and government segments.

Data collection notes

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.

Point-of-sale (POS) data

To size the U.S. retail market for plant-based foods, GFI and the Plant Based Foods Association (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 by 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 November 30, 2025, from the SPINS Natural Expanded Supermarket Channel, SPINS Conventional Multi-Outlet, and Convenience Channels (powered by Circana).

SPINS defines these channels as follows:

- **Conventional Multi-Outlet (MULO):** The Conventional Multi-Outlet Channel (powered by Circana) comprises over 110,000 retail locations. It covers the Grocery Outlet (stores with $2 million+ annual ACV), the Drug Outlet (chains and independent stores, excluding Rx 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 (HWI) and 15% or more from the Natural Product Industry (NPI) 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 GFI reporting. 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 November 30, 2025, from all U.S. outlets.

Distributor to operator sales data

GFI 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 20 participating broadline distributors, data from 280+ categories, and collects 850K+ operator purchases monthly. SupplyTrack covers ~48 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:** QSR, FSR, 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 2021, 2022, 2023, 2024, and 2025, all 12 months ending in December.

Investments

Overview

Companies operating primarily in the plant-based ecosystem raised $450 million in 2025, according to GFI analysis of data from Net Zero Insights. Of that total, $302 million went to privately held companies, and $147 million went to publicly traded companies. That brought the total capital invested in the sector since 2016 to $10.8 billion, $8.2 billion of which was raised by privately held companies.

Key trends from 2025 include:

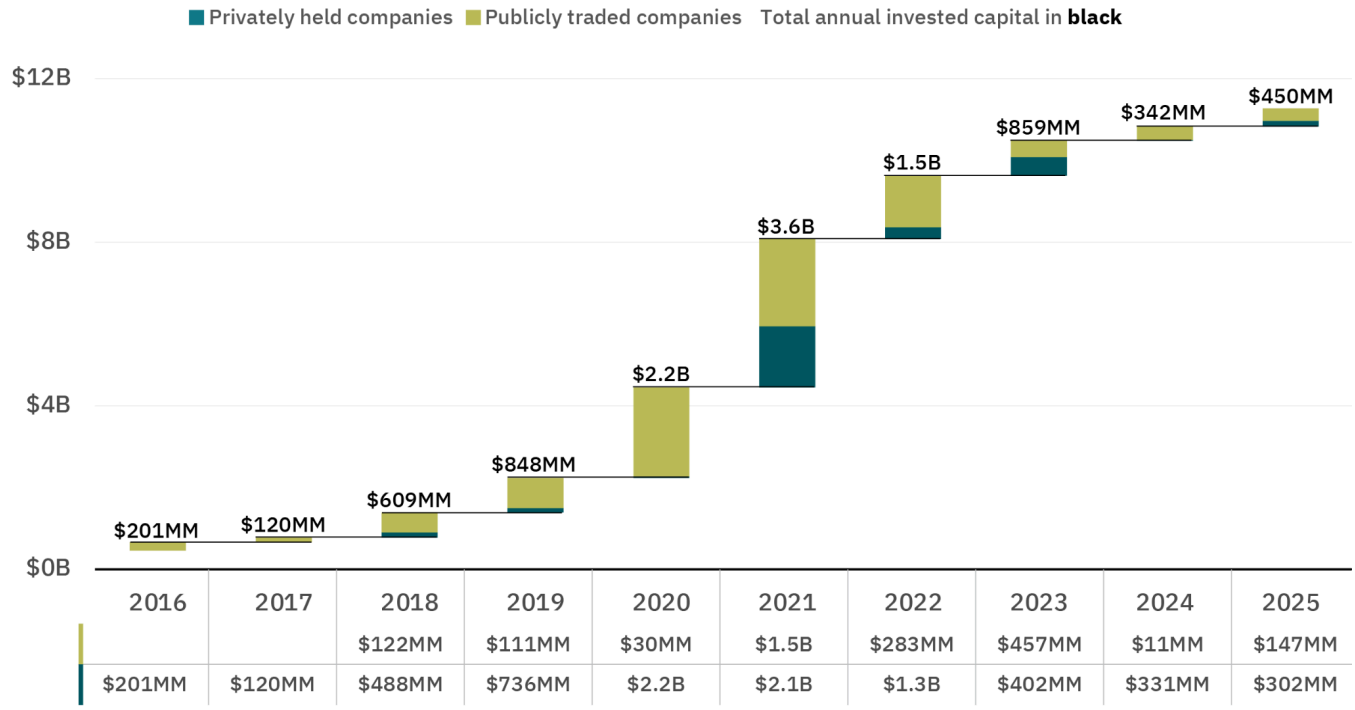
- **Capital flows to established brands:** The largest plant-based deals in 2025 went to companies already generating meaningful revenues in established retail, foodservice, or B2B channels. Paired with investor preference for near-term market traction, these dynamics contributed to a strong year for Europe-based companies, who captured nearly two-thirds of all capital raised by privately held plant-based companies in 2025. The flip side was a challenging environment for smaller, emerging brands—particularly in the U.S.—where ongoing headwinds in plant-based meat continued to weigh on investor appetite.
- **Category consolidation accelerates:** Several notable mergers, acquisitions, and closures occurred in 2025. At least 19 plant-based companies were bought out or acquired, reflecting a consolidation of product portfolios, technology stacks, and brand equity. Notable transactions included **v2food**'s acquisition of **Daring Foods** and **Vivera**'s (**JBS**) acquisition of **The Vegetarian Butcher** from **Unilever**. At the same time, multiple plant-based companies paused or ceased operations after struggling to secure follow-on financing. As capital coalesces around scalable platforms and differentiated brands, companies struggling to improve unit economics or demonstrate durable demand are increasingly driven to sell assets or IP, or close their operations.
- **Companies leverage portfolio diversification:** In 2025, several plant-based companies broadened their portfolios beyond meat, eggs, dairy, and core ingredients and into whole-food plant-based products, protein-added foods, and ready-to-drink beverages. Others leveraged their technology platforms to expand into adjacent categories and monetize capabilities in a wider range of markets. Companies are seeking to stabilize revenues, broaden investor appeal, and de-risk growth by entering new categories with products that can generate additional near-term demand.

The wider ecosystem of alternative protein companies—including those focused on cultivated meat and fermentation-derived proteins—raised $881 million in 2025, with approximately half of the funds going to plant-based companies. Of that overall total, $734 million was raised by privately held companies and $147 million was raised by publicly traded companies. Since 2016, privately held companies in the sector have raised $16.7 billion, while publicly traded companies have raised $2.7 billion.

Broader private capital markets are increasingly dominated by investments in artificial intelligence (AI), which captured nearly 50 percent of all global funding in 2025. Venture capital tightened across most other sectors, and alternative proteins experienced similar barriers to raising capital as the climate tech and food tech spaces. Despite this challenging overall funding environment, investments in plant-based companies rebounded slightly in 2025.

Figure 8. Investment in privately held and publicly traded plant-based companies

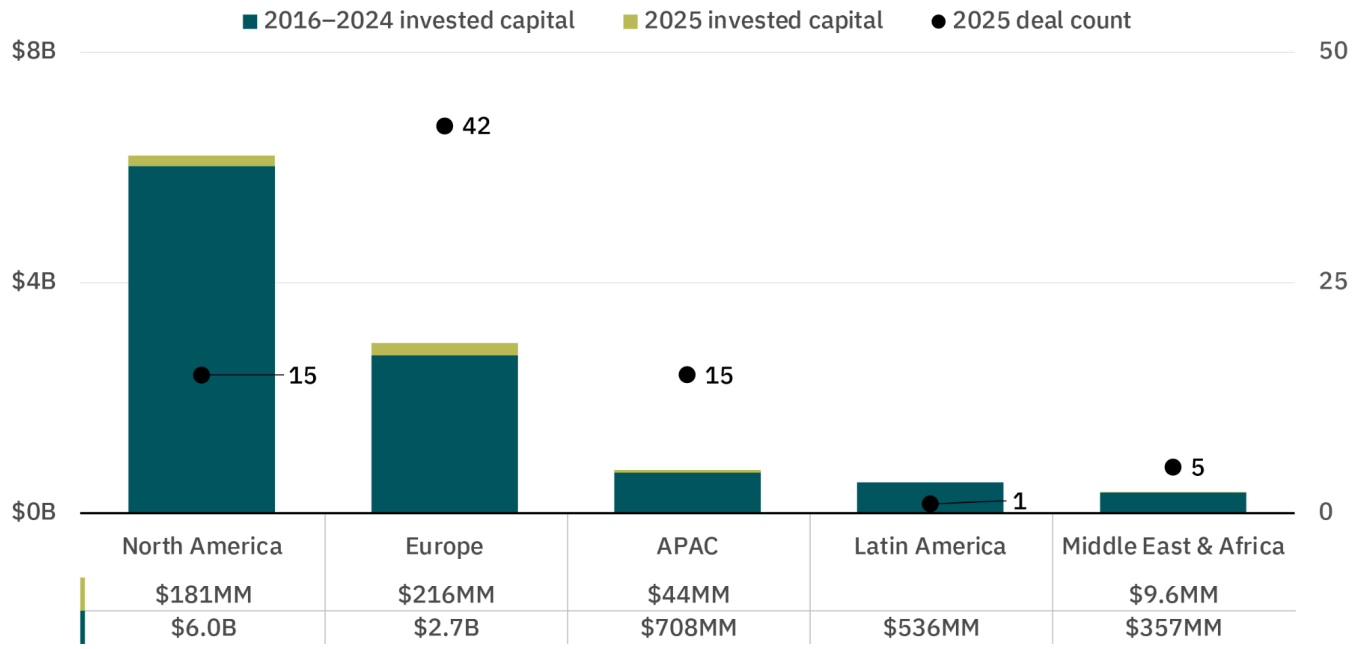
2016-2025



Source: GFI analysis of data from Net Zero Insights. Note: Aggregated data has not been reviewed by Net Zero Insights analysts.

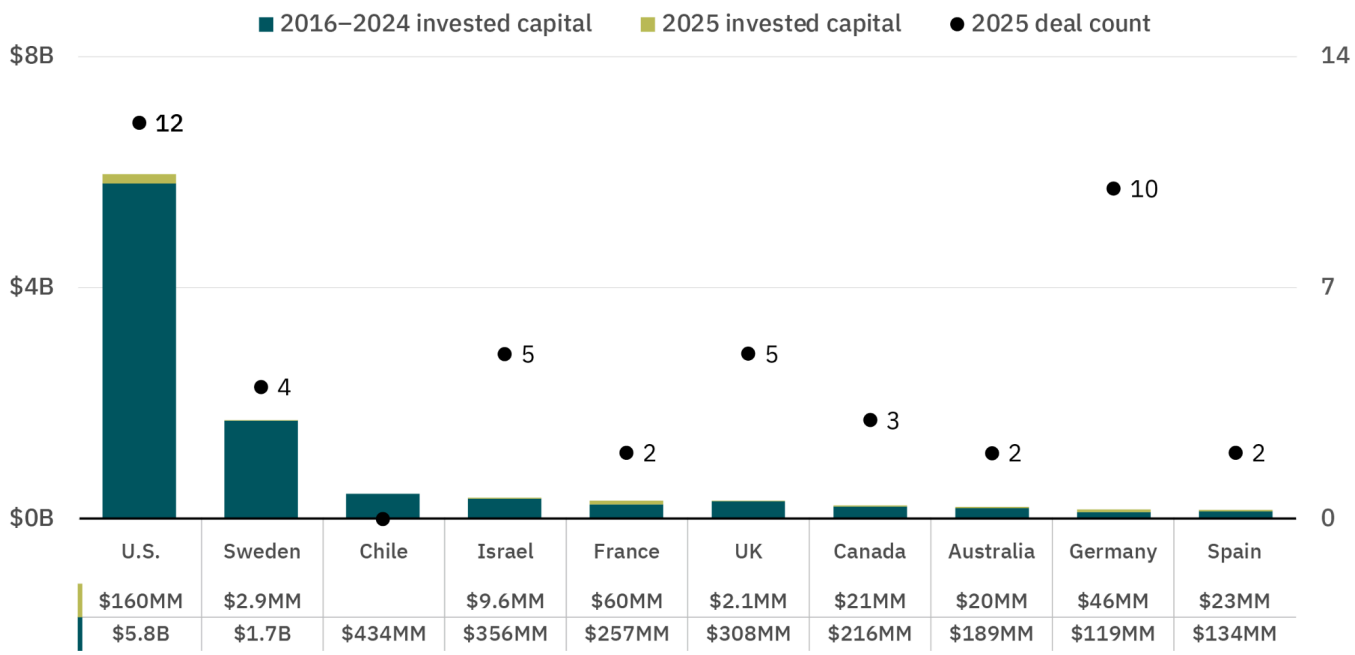
Figure 9. Investments in plant-based companies by region

2016-2025



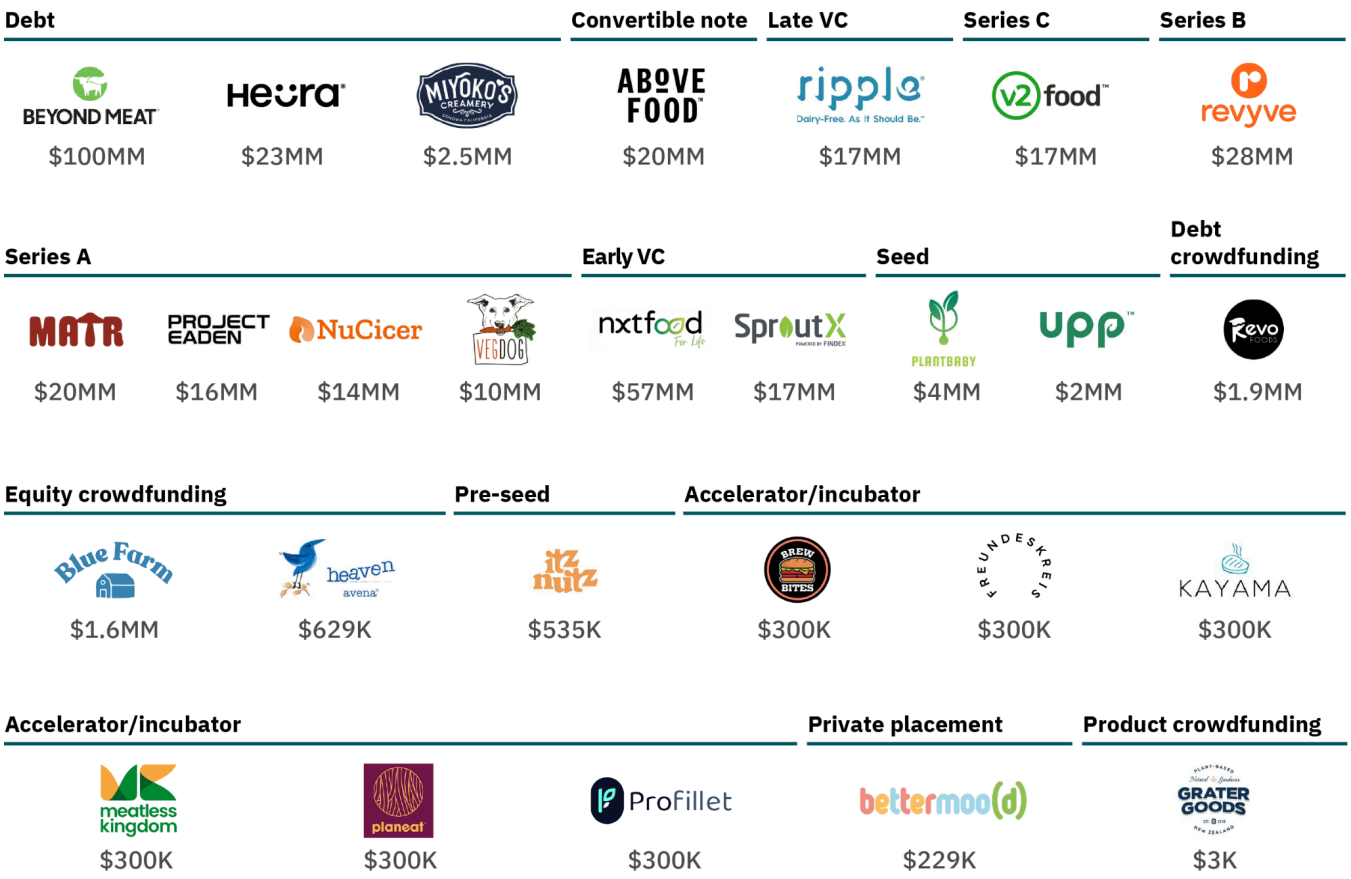
Source: GFI analysis of data from Net Zero Insights.
Note: Aggregated data has not been reviewed by Net Zero Insights analysts. The total deal count includes deals with undisclosed amounts.

Figure 10. Investments in plant-based companies: Top 10 countries
2016-2025



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. 2025 key funding rounds



Source: GFI analysis of data from Net Zero Insights.
Note: "2025 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.

Europe leads the way

Investments in Europe-headquartered plant-based companies ($216 million) exceeded those in North America ($181 million) for the fourth consecutive year. European companies have benefited from more resilient category performance in the region, and investments from public and multilateral players have also helped drive commercialization.

For example, in 2025, the **European Investment Bank** (EIB), backed by the EU's **InvestEU** program, provided a €20 million loan to **Heura Foods** to support R&D and scale-up investments. Other large-scale financings combined equity with venture debt to fund production expansion, such as **MATR Foods**' €40 million raise, with debt from EIB and participation from **Denmark's Export and Investment Fund**. The combination of well-executing startups, committed corporates, and supportive governments points to a plant-based ecosystem increasingly centered in Europe.

Partnerships as a path to scale

In a more selective capital environment, partnerships have become an increasingly important lever for plant-based companies to scale, enter new channels, and move toward profitability. For many brands and B2B suppliers, commercial partnerships and supply agreements can partially substitute for financing by providing demand visibility, manufacturing leverage, and distribution reach without requiring large new fundraising rounds. For incumbent agrifood companies with longer internal innovation cycles, partnering with startups can also accelerate product development, provide access to differentiated technology, and enable lower-risk testing of new formats.

Plant-based partnerships in 2025 focused primarily on product development, scale, and regional expansion. As investors look to partnerships as signals of market readiness, these collaborations generally create the most value when they demonstrate durable demand growth or operational efficiencies. When those things are achieved, partnerships can also clear pathways to acquisitions or other exits, strengthening the case for follow-on capital.

Looking ahead

A smaller set of more diversified brands is leading the plant-based category into its next phase. These companies have weathered the challenging conditions of recent years by refining their product lines and commercial strategies. For capital to return at a larger scale, they will eventually need to deliver exits that enable investors to deploy more capital into the category.

Until then, near-term capital is likely to remain constrained. New funding is likely to flow primarily to companies with near-term revenues, strong unit economics, and viable exit pathways. For others, partnerships may offer the most practical route to increasing scale. Continued engagement from governments and other institutions is also essential to sustaining innovation even as private markets remain tight. Buy-in from large corporates, governments, and other institutions drove growth in sectors from clean energy to global health. Achieving similar commitments to the plant-based sector can help increase the optionality and resilience in the food supply that are necessary to feed a growing population.

Consumer insights

Overview

The plant-based meat category continues to evolve globally. In the largest markets of Europe and the U.S., the category is entering a more demanding phase of maturation, shaped by complex consumer expectations around taste, price, and health, among other factors. In other regions like Asia Pacific and Brazil, demand and market access are less mature, though many consumers show strong interest. Research in 2025 provided new data on plant-based consumers across the globe, including opportunities and challenges to expand consumer reach.

- **Taste and price are key:** Taste and price remain foundational to consumer choice, and gaps in both limit adoption.
- **Health is important and regionally nuanced:** Health is a key driver of consumer interest in many regions, and new research in the U.S. provided a deeper understanding of consumers' attitudes and behaviors around health, while research in Brazil and the UK highlighted the role health benefits can play in driving consumer interest.
- **Consumer awareness and exposure are challenges in many markets:** Broader and more compelling marketing and improved visibility in places where consumers shop and eat are important to grow the category, which was highlighted by U.S. research that revealed limited consumer exposure to the category today.

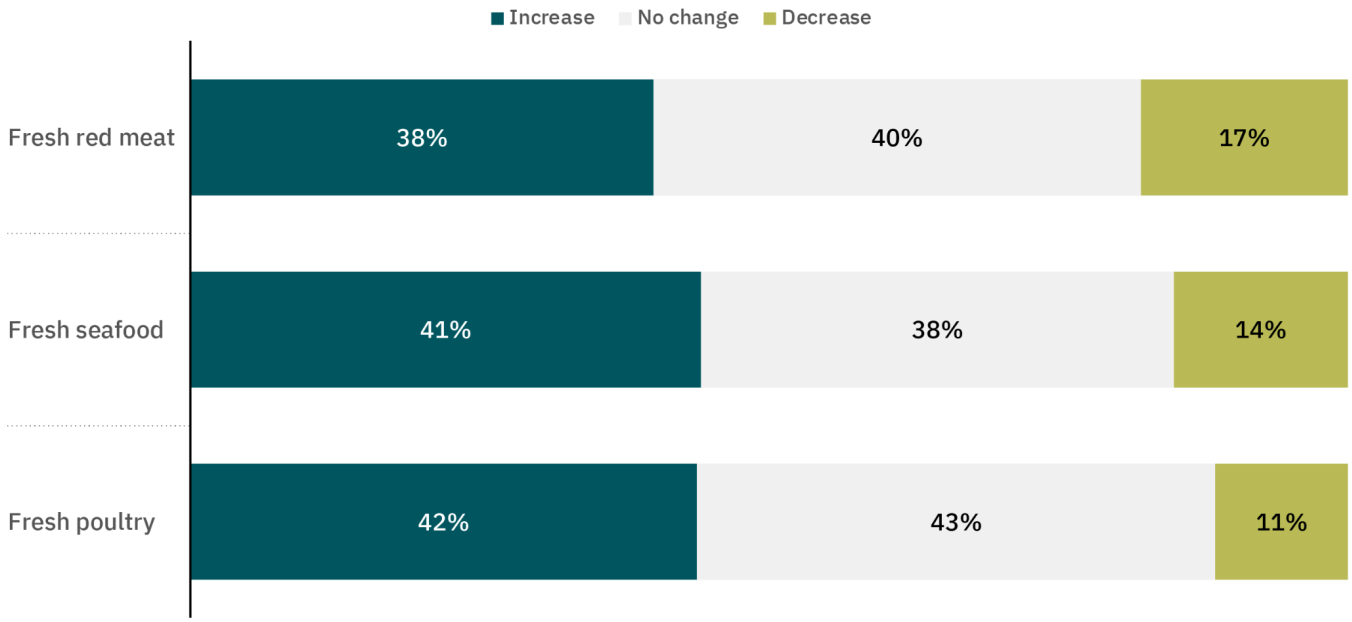
Asia Pacific consumer findings

A pair of new studies examined consumer attitudes across Asia Pacific at a regional level toward plant-based proteins and meat reduction, finding both high engagement with plant-based proteins and broad interest in increasing conventional meat consumption.

- **Strong interest in plant-based proteins:** Research by Kantar found that 41% of Asian consumers reported trying plant-based proteins, higher than global averages—with snacks (46%) leading, followed by plant milks (44%) and plant-based meat (40%).
- **Many intend to increase meat consumption:** However, a survey by PwC found that more consumers in Asia Pacific report that they intend to increase their consumption of red meat, poultry, and seafood than intend to decrease.

Plant-based tuna and plant-based shrimp. Image courtesy of Thai Union Group PCL

Figure 12. More consumers across Asia Pacific intend to increase meat consumption than decrease it



Source: PwC, Voice of the consumer 2025: Asia Pacific, published January 26, 2026

- **A need for product innovation:** Because of the size and diversity of Asia Pacific's markets, more research is needed to identify strategies that best position plant-based choices among their animal-based counterparts. Fortunately, the region boasts a strong innovation ecosystem for plant-based proteins.

In a region that is interested in both plant-based and conventional proteins, products that combine conventional animal meat and plant-proteins—referred to in this report as blends or blended meat—are being explored, especially as an option for consumers who are interested in the taste and texture of conventional meat and the sustainability, health, and broader benefits of plant-based meat.

GFI APAC and NECTAR conducted sensory research on these blended products* in 2025 in collaboration with A*STAR's Singapore Institute of Food and Biotechnology Innovation, and found that:

- **Many consumers are open to blended meat:** More than half (58%) reported that they would be likely to purchase blended meat.
- **Blended products had sensory gaps compared to conventional products, but leading products suggest room for growth:** Blended products were less liked on average than 100% animal ones in terms of taste and appearance, but one blended product outperformed an analogous conventional product (a chicken mince), and several, including meatballs, tenders, and patties, came close.
- **Blends could reach untapped consumer segments:** Half (50%) of those who would buy blended products expressed low intent to buy fully plant-based meat, suggesting these products may appeal to consumers who are not likely to choose plant-based meat products today. This mirrors earlier GFI APAC research from six Southeast Asian countries, which showed that consumers interested in trying blended meat included more than three-quarters of people who identified as skeptical of trying fully plant-based meat and 80% of those who have eaten plant-based meat before but don't intend to again.

** As with many new food categories, the language used to describe these products may evolve. In this report GFI refers to products produced and explicitly marketed using a combination of alternative protein and conventional meat as "blended meat." NECTAR refers to these products as "balanced."*

Brazilian consumer findings

Following up on survey research from 2024, GFI Brazil conducted new research, including qualitative interviews with Brazilian consumers and cross-category analyses of food and beverage segments to identify barriers and drivers for plant-based growth in Brazil, and found:

Meat remains central: In the Brazilian diet, meat is closely tied to taste, satiety, and social connection. Plant-based meat is often interpreted as signaling dietary restriction rather than expanded choice, which continues to limit adoption. Consumers who do adopt these products tend to be motivated by personal health and the management of everyday eating habits, such as reducing fat intake, controlling calories, supporting gym routines, or feeling lighter, while concerns about price, flavor, protein, and preparation remain key barriers.

Insights from other categories: Growing categories in Brazil, like non-alcoholic beer, protein supplements, condensed milk, and baby formula, offer several potential lessons for the plant-based meat category, including:

- Reframing value around health, dissociating it from militancy or restriction discourses
- Reinforcing protein, satiety, and gastronomic pleasure
- Defining familiar formats and occasions
- Increasing visibility
- Leveraging trusted culinary and wellness voices
- Focusing on early adopters
- Focusing on wide availability

European consumer findings

In Europe, new research in 2025 found health perceptions are important for the category in multiple countries: Spanish consumers see plant-based meat as lagging conventional, UK university students find protein content a compelling reason to switch, and diverse health goals were among the drivers of dietary change intentions in the UK and Germany.

Spanish consumers' outlook on plant-based meat suggests health gaps: A survey of 2,026 adults in Spain on their dietary habits and attitudes to meat reduction and plant-based diets found that:

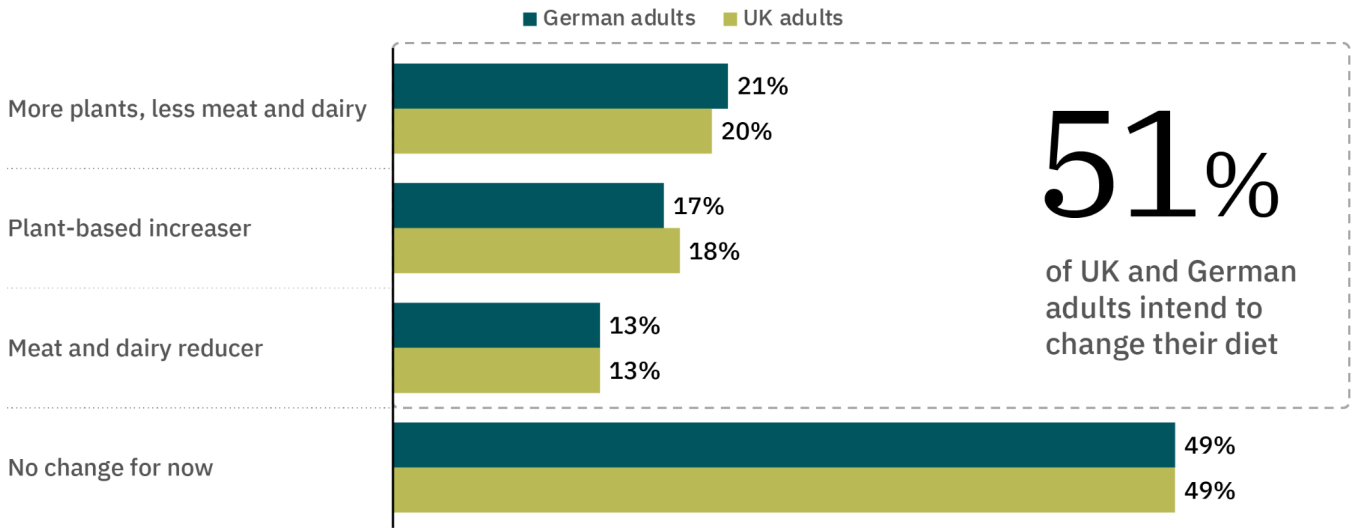
- **Awareness of plant-based products is widespread:** Almost three in four consumers (72%) claimed to have heard of plant-based products that imitate meat when prompted with both brand and product type examples. And plant-based milk is common, commanding almost 10% market share of retail milk sales in Spain as of 2024, according to analysis by GFI Europe, indicating many Spanish consumers are already purchasing plant-based products apart from meat.
- **Plant-based meat is seen as healthy by many, but conventional meat by more:** Half (50%) of Spanish consumers said plant-based meats that imitate meat are "very" or "somewhat" healthy. More consumers say soy products (textured soy, tofu, tempeh, 61%), conventional meat (88%), and conventional fish (95%) are healthy.
- **Plant-based meat is seen as expensive:** Almost two in three (64%) Spanish consumers think plant-based meat products are very or somewhat expensive.
- **Demographic differences are prominent:** Younger consumers (<40) expressed more health-conscious attitudes, were more aware of plant-based meat, and were more likely to see plant-based meat analogs as a good substitute for conventional meat, suggesting their health perceptions of the category and general attitudes may be more favorable than those of older consumers.

Motivations for dietary change vary: Research published in 2025 by GFI Europe, the Plant Futures Collective, and HarrisX found that half (51 percent) of adults in both Germany and the UK want to consume either less meat and dairy and/or more plant-based foods. Among these, three segments emerged.

- **Meat and dairy reducers:** 13% of consumers, motivated by weight loss.
- **Plant-based increasers:** 18% of consumers, motivated by fitness goals such as building muscle and eating more protein.
- **"More plants, less meat & dairy":** 20% of consumers, motivated by environmental and animal welfare.

Protein information can drive choice: Research on university students in the UK found that participants were over twice as likely to select a vegan option containing plant-based meat (a vegan sausage roll) when it was shown as having more protein than a conventional meat option.

Figure 13. Interest in dietary change among UK and German consumers



Surveys of n=2,394 UK adult consumers and n=2,433 German adult consumers
Source: Research published by GFI Europe, the Plant Future Collective, and HarrisX in May 2025.

Indian consumer findings

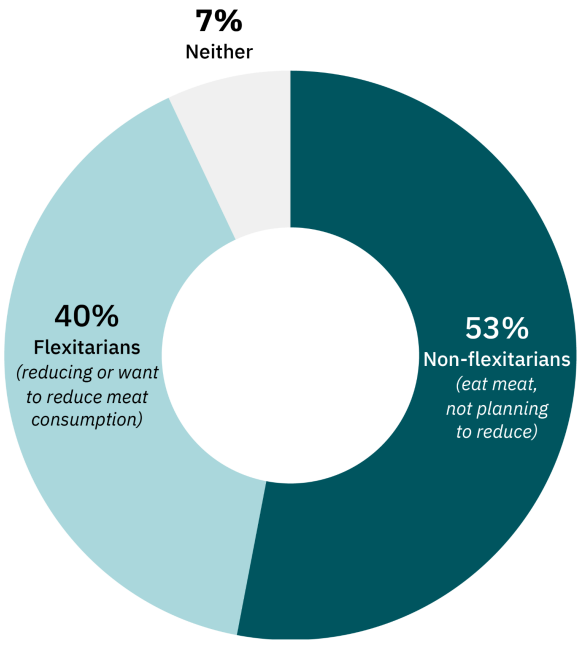
Recent consumer research on plant-based foods in India, synthesized in the Ipsos–PBFIA 2025 report, highlights several drivers and barriers shaping consumer demand for the category:

- **Health and preventive wellness are strong demand drivers:** Indian consumers increasingly associate diet with preventive health and self-care. About one-third of plant-based consumers report choosing plant-based dairy or meat primarily for nutritional benefits such as protein intake, cholesterol management, and improved digestion.
- **Plant-based dairy is the primary entry point for consumers:** Familiarity and adoption of plant-based dairy products are significantly higher than for plant-based meat. Nearly half of households report familiarity with plant-based dairy, with products such as almond and soy milk emerging as gateway categories for broader plant-based consumption.
- **Consumption remains occasional:** Even with increased awareness and interest, only about 7–8% of plant-based consumers regularly consume plant-based milk. Traditional dairy (with 62% consuming daily) continues to dominate, highlighting the challenge of shifting established consumer preferences.
- **Price, availability, and family acceptance are key barriers:** Over a third of plant-based consumers cite affordability, limited availability, and lack of appeal to members of the family as obstacles to wider adoption. Improving taste, accessibility, and cost competitiveness continue to be critical to scaling consumer demand in price-sensitive markets like India.

Israeli consumer findings

Research by GFI and Kantar in Israel in 2025 examined consumers' attitudes toward products that blend conventional meat with plant-based ingredients, and found:

Figure 14. How many Israeli consumers are reducing meat consumption?



Research by GFI and Kantar in July 2025, n=484 non-vegan/vegetarian consumers

- A total of 40% of Israelis are already (25%) or would like to become (15%) flexitarians.
- Flexitarians are around twice as likely to report eating plant-based meat substitutes as non-flexitarians (27% vs. 13%).
- Twice as many flexitarians report being motivated to reduce meat consumption by "concern for health" (61%) than by animal welfare (the 2nd most common reason at 29%).
- Flexitarians were much more focused on reducing red meat consumption than other meat types: 88%, vs. just 36% for chicken and 11% for fish.
- Flexitarians were significantly more likely to be interested in three product concepts that blended conventional and plant-based meat, including ground beef, burger patties, and sausages. Compared to non-flexitarian meat consumers, they were more than twice as likely to express the intent to purchase blended meat (40% vs. 17%).

U.S. consumer findings

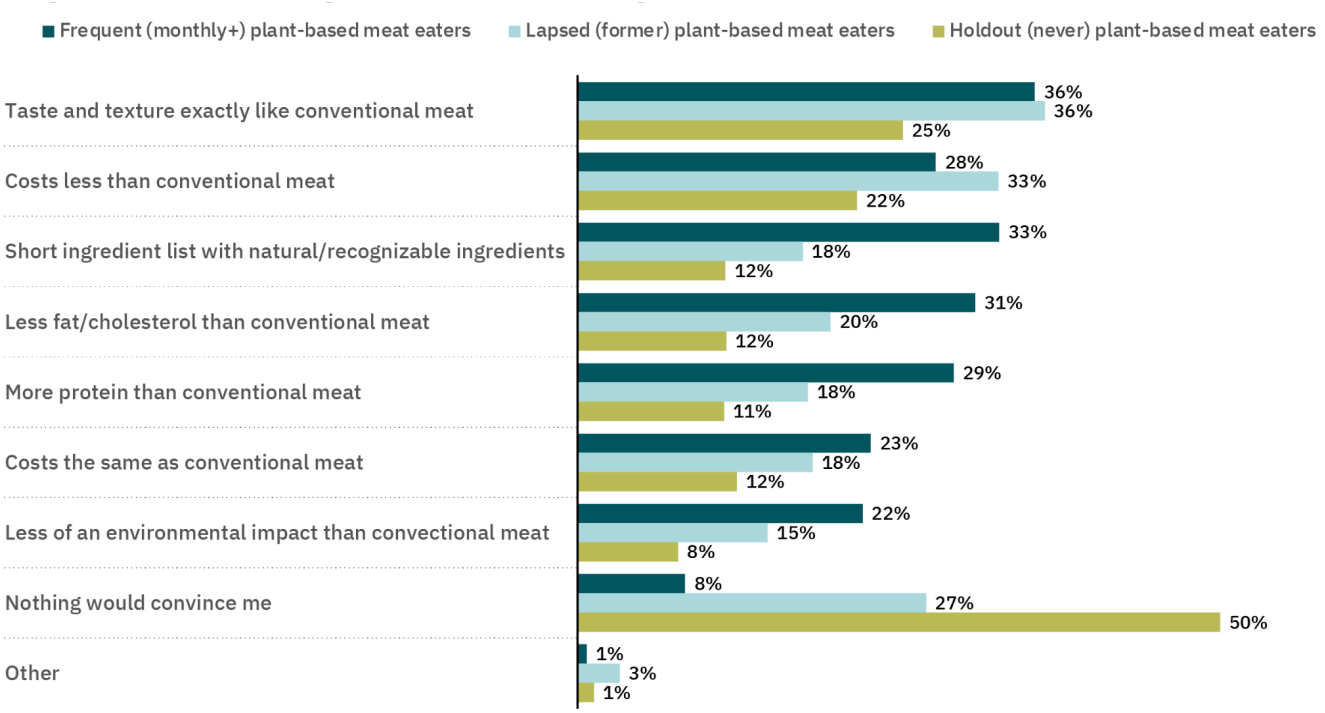
Consumers remain interested but adoption lags: While sales of plant-based meat declined in both retail and foodservice in 2025, a majority of consumers remain open to the category.

- GFI's U.S. consumer segmentation in 2024 found almost three in four U.S. consumers from Gen Z to Gen X were open to plant-based foods. New research in 2025 found that almost half of U.S. adults (42%) find plant-based meat appealing, and more than half (51%) are at least "somewhat likely" to eat it.
- According to SPINS, just over 11% of U.S. households bought plant-based meat and seafood in retail in 2025 and almost two in three (63%) of those households purchased plant-based meat multiple times. And others who are not purchasing in retail are still consuming plant-based meat: 40% of Americans say they ate plant-based meat at least once in 2025, with 40% of those (equalling 28% of U.S. adults) reporting buying it in foodservice locations like restaurants or cafeterias.
- According to SPINS, households purchasing plant-based meat in U.S. retail in 2025 purchased 12 units on average. Among those households, 96% also bought conventional meat and purchased an average of 80 units, highlighting the significant opportunity to capture a higher share of meat purchases among current buyers.

Closing gaps on taste and price are critical to growing adoption: In GFI research conducted in 2025, when U.S. consumers were asked what would lead them to purchase a new plant-based meat product, tasting like and costing less than conventional meat rose to the top, and were particularly impactful for lapsed consumers who have tried the category but stopped buying. This is consistent with multiple recent studies that have identified taste and price as the primary barriers to plant-based meat adoption. Health-related

benefits were also motivating, particularly for current plant-based meat consumers.

Figure 15. What would convince current, lapsed, and hold-out plant-based meat eaters to purchase a new plant-based meat product?



Imagine you see a new plant-based meat product the next time you are grocery shopping. Which of the following reasons, if any, would convince you to buy it? Select all that apply.

Poll by Morning Consult on behalf of GFI: n=3,009 U.S. adults, November 2025, among 905 monthly+, 341 lapsed, and 1,229 holdout consumers

Taste and texture are crucial to plant-based meat's value proposition, and many consumers say they are interested in products that more closely resemble meat. While companies continue to innovate toward meatier-tasting plant-based products, others are looking to blended products that combine plant-based and animal ingredients. New research by Food System Innovations and NECTAR in 2025 explored how plant-based meat and "balanced proteins" combining plant-based and conventional meat ingredients met consumers' sensory expectations. While these studies found that many purely plant-based products lagged their animal-based analogs, several plant-based and balanced protein products outperformed animal-based ones in popular product categories like burgers, nuggets, and more, suggesting that plant-based proteins continue to make progress on sensory parity.

> The sensory profile of most plant-based meat products is complex, and sensory testing can be even more complex. GFI has published a sensory best practices guide for researchers, scientists, and companies to rigorously evaluate and optimize the sensory performance of plant-based meat (and other alternative protein) products.

Health can motivate consumers to choose plant-based meat: While closing gaps on taste and price are critical to increase plant-based meat adoption, consumers also need a compelling reason to switch. Many consumers who have never tried or have not recently eaten plant-based meat say they "don't see a reason." At the same time, many remain open to plant-based meat and indicate that various health benefits may motivate them to consider new plant-based meat products. New research by GFI in 2025 confirmed health is a core part of plant-based meat's value proposition: many U.S. consumers see it as healthy overall, and say they would be persuaded by even healthier products. This research suggested that consumers who prioritize health spend more on plant-based meat, and that improving health perceptions has the potential to improve sales, especially among current buyers who tend to buy infrequently today. This research also revealed multiple opportunities to improve health perceptions of plant-based meat, such as educating consumers on macronutrient (e.g., protein, fiber) contents, shortening and optimizing ingredient lists, and leaning into inherent benefits that differentiate it from conventional meat, such as being free of hormones and antibiotics.

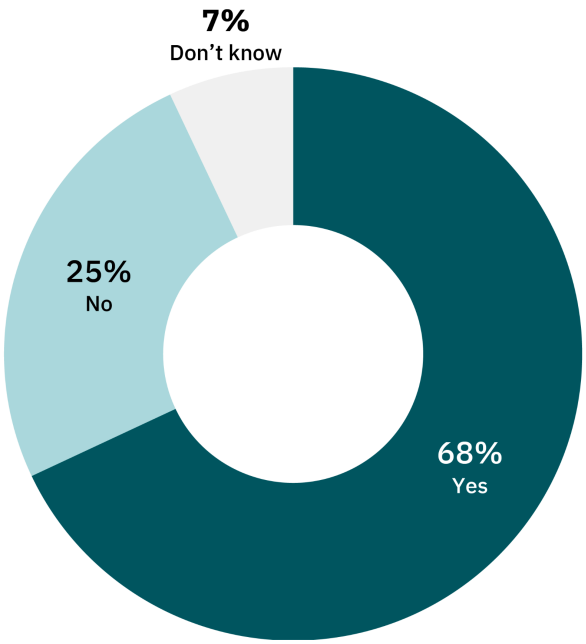
Health is an important factor in plant-based meat choice

- **A majority of plant-based consumers see plant-based meat as healthy:** Around four in five recent (past two years) U.S. plant-based meat consumers rate plant-based meat as "somewhat" or "very" healthy, suggesting products are seen as delivering health benefits among core consumers.
- **Health-motivated plant-based meat consumers spend more on plant-based meat:** U.S. plant-based meat consumers who "strongly agree" that health is their most important consideration when deciding what to eat spend 56% more on plant-based meat annually than those who "disagree" or "strongly disagree," suggesting that a greater focus on health contributes to higher spending among current consumers.
- **Plant-based consumers see room for progress on protein**: Half of U.S. plant-based meat consumers think of plant-based meat as high in protein, though many see it as lower than conventional meat. Protein is one of their top stated needs and a top factor in determining what foods they consider healthy, and many tend to underestimate the amount of protein in plant-based meat products relative to the protein content of top-selling products on the market, making this an opportunity for consumer education in the near term.

Marketing, retail, and foodservice dynamics are limiting consumer discovery and exposure: Research suggests that few consumers are being exposed to plant-based meat in general, which can impact both adoption and purchase frequency.

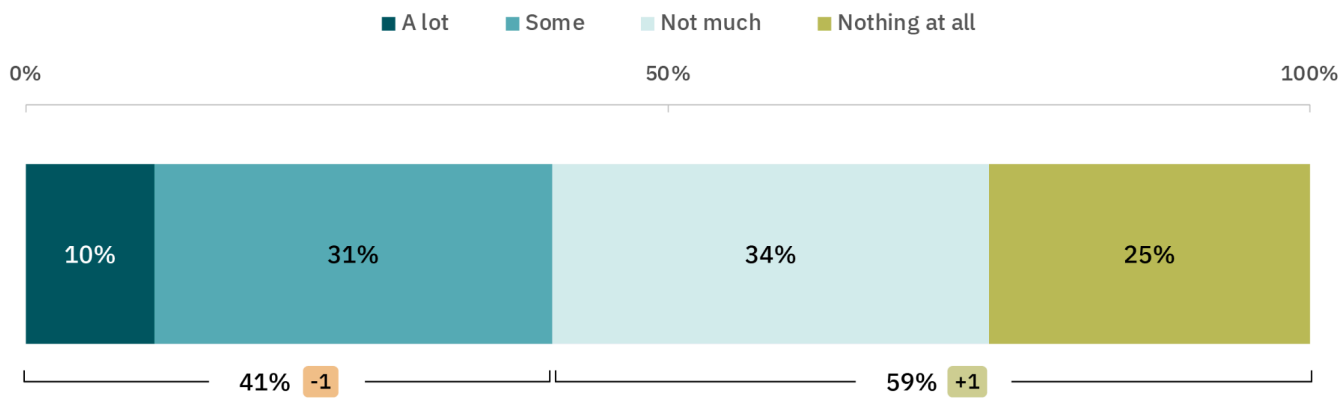
- While more than two in three (68%) report having heard of plant-based meat, just 10% reported "seeing, reading, or hearing a lot" about it in the past year.
- It is also likely that fewer consumers are seeing plant-based meat in retail and foodservice outlets. Year over year, more plant-based meat products that were previously shelved in the retail refrigerated aisles, where velocities tend to be higher and consumers can often compare with conventional meat, have been moved to frozen sections. According to SPINS, in 2025, 70% of all plant-based meat and seafood units sold came from the frozen section, up from 66% in 2023.
- A review by GFI of menus at the 250 largest restaurant chains in the U.S. by revenue in 2025, according to Technomic, estimated that around 14% of restaurant locations among chains that offered any conventional meat options also offered plant-based meat or seafood analog items as of November 2025. This likely reflects a decline in availability from previous years, with some restaurants restricting plant-based meat dishes to "participating" locations, ending limited-time offers, or removing plant-based meat menu items outright.
- With limited opportunities to connect with consumers, it will be increasingly important for products to convey clear and compelling value propositions.

Figure 16. How many U.S. consumers have heard of plant-based meat?



Poll by Morning Consult on behalf of GFI: n=3,009 U.S. adults, November 2025

Figure 17. How much have U.S. consumers heard about plant-based meat?



Poll by Morning Consult on behalf of GFI: n=3,009 U.S. adults, November 2025

Looking ahead

- **Consumers remain open:** Plant-based meat faced a variety of challenges in 2025, including declining sales in the U.S. and restrictive legislation in Europe (see "Regulation by Country and Region: European Union"), but meaningful numbers of consumers remain open to the category.
- **Taste and price are table stakes:** Research across multiple regions continued to confirm taste and price as vital to drive plant-based choice, and are areas plant-based stakeholders should prioritize for improvement.
- **Health is a potentially valuable differentiator:** It also affirmed health as a key consumer need and aspect of plant-based meat's value proposition in many markets, with strategies like emphasizing protein content emerging as an opportunity to drive consumer interest in the near term.
- **Consumer needs are diverse:** The need for broader and more compelling messaging for the category was also evident in research in several regions. Still, consumers' motivations for considering plant-based meat are diverse within and across countries, and more research will be needed on specific product types, consumer groups, and market positions to expand on growth opportunities going forward.

Science and technology

Tracking the technological readiness of the plant-based sector is a useful method to evaluate its progress toward competing on price, taste, and availability with conventional meat, dairy, and eggs. Technological readiness can be assessed by evaluating progress, challenges, and overall risk across categories such as scientific feasibility, engineering viability, and innovation capacity. In this section, we focus on the most noteworthy dimensions within each of these categories that took center stage in 2025.

Read more about technological and commercial readiness frameworks.

Photo credit: Sunshine Seeds / Adobe Stock

Scientific feasibility

Raw materials and feedstocks

Progress in plant-based meat remains closely tied to the performance, cost, and availability of raw materials. In 2025, advances in crop breeding, ingredient processing, and feedstock diversification pointed to multiple pathways to improve raw materials—often with the added benefit of reducing downstream processing complexity and cost.

- **Targeted breeding and technology development:** Research led by the John Innes Centre and the Chinese Academy of Agricultural Sciences combined pea genomics, bioinformatics, and genetic mapping to set the stage to revolutionize pea breeding by making a new gene bank and set of genomic resources publicly available to researchers. This comes just as industry partnerships between plant-based brands and breeding companies signaled growing commercial interest in purpose-bred crops. In 2025, a global group of researchers led by Michigan State University published a first-of-its-kind comprehensive review of breeding for plant-based proteins in pulse and legume crops. It reinforced that optimizing crops for digestibility, functionality, and flavor can reduce downstream processing complexity and production costs and ultimately add value for the consumer by enhancing nutritional value, accessibility, and sensory experience.
- **Ingredient optimization:** Taiwan's **Ubiquity Sprouting Corporation** released new germination technology to increase bioavailability while reducing antinutrients and improving binding, mouthfeel, and off-notes, which offers another route to improving ingredient performance without increasing processing intensity.

- **Valorization of sidestreams and byproducts:** Research and pilot operations explored a range of agricultural sidestreams, including apple pomace in beef meatballs, guar meal protein isolate, emulsifiers derived from brewer's spent grain, and protein extracted from upcycled broccoli stems. Startups explored using okara and other byproducts as feedstocks for plant-based meat, sometimes in combination with fermentation. Collectively, these efforts highlighted the potential for sidestreams to reduce production costs for manufacturers, develop new revenue streams for growers and processors, create better sensory and nutritional characteristics for consumers, and support overall reductions in food loss and waste.

- **Bets on high-abundance proteins:** Rubisco-based ingredients continued to advance in 2025, with New Zealand's **Leaft** commercializing protein from green leaves and partnering with Japanese dairy giant **Lacto Japan** to expand their reach. Duckweed-derived Rubisco moved closer to market through **Plantible**'s first commercial facility. The appeal of these sources lies in their abundance and potential for geographically distributed, large-scale production, which could support more resilient and stable supply chains over time, despite the remaining technical and regulatory challenges.

- **Optimization of familiar crops for plant-based applications:** Innovation around commodity crops accelerated, including the commercialization of **Burcon**'s high-purity canola protein with protein quality comparable to soy and with fewer flavor or allergenicity concerns. Some canola protein ingredients, such as **dsm-firmenich**'s line, are made by valorizing a sidestream of edible oil production, integrating plant-based protein production with existing agricultural systems. Specially bred soybean varieties designed to reduce undesirable flavors further underscored the role of breeding in improving ingredient performance while leveraging ready-made scale, established grower know-how and infrastructure, and greater consumer familiarity with these crops.

- **High-pressure processing enabled improvements to ingredient functionality:** Multiple studies showed that high-pressure homogenization and ultra-high pressure treatment can improve solubility, water-holding capacity, appearance, and structural properties of emulsified plant-based meats and proteins already widely used in plant-based meat, such as pea and potato proteins. Similar techniques were applied to emerging feedstocks, such as a study on macauba kernel byproducts by the University of Santa Catarina, demonstrating improved performance in nugget-style applications. These approaches suggest a complementary pathway to feasibility and extending the functional range of incumbent ingredients rather than replacing them outright.

✦ *Key takeaway*

Upstream strategies like breeding, processing, and feedstock diversification increasingly target protein performance at the source, with benefits for cost, scalability, and supply chains. In 2025, innovations in novel proteins, sidestreams, and optimized commodity crops complemented incumbent ingredients, with improvements to these inputs promising faster, near-term results.

Check out GFI and FFAR's joint report, Research priorities for plant-based and fermentation ingredients, and GFI Brazil's key R&D opportunities based on insights gathered through national technical discussion forums focused on two strategic commodity crops: beans and soy.

End-product attributes

Progress in 2025 related to end-product attributes emphasized formulation strategies that improved sensory quality, nutritional performance, and consumer acceptance of plant-based meat, dairy, and eggs, with advances spanning ingredient functionality, fat systems, and hybrid and blended product formats.

- **Proteins with enhanced texturizing and emulsifying functionality:** Several ingredient developers advanced proteins designed to replace or reduce the use of starches, hydrocolloids, and other binders in plant-based meat formulations. **Shiru** commercialized uPro, a protein ingredient engineered for improved emulsification and texture, while **Meala** and **dsm-firmenich** introduced a pea protein texturizer positioned to deliver structure and juiciness with simpler formulations. Ingredient systems developed by **Planteneers** demonstrated improved snap, sliceability, and deli-style products using primarily pea and soy proteins. Together, these developments reflect growing emphasis on proteins with stronger techno-functional performance, which can help manufacturers respond to consumer desire for cleaner labels while improving sensory attributes. As starch prices fluctuated in 2025, interest in protein-based functional ingredients also highlighted potential cost and formulation advantages, though impacts on implementation cost remain product- and process-specific.

- **Focus on fats:** Recognizing the central role fats play in sensory attributes, companies and researchers continued to advance a range of fat ingredients and structuring strategies. Companies developed approaches including **Time-Traveling Milkman**'s oleocream, **Cocuus**'s multilayer fat marbling systems, and **Shiru**'s AI-designed OleoPro, while **Savor Butter** began commercial production and **Nourish** increased production capacity, signaling progress toward scalable novel fat ingredients rather than early concepts. Parallel academic and industry research explored structural strategies such as layering plant-based proteins with polysaccharides to improve melting, stretching, and browning in plant-based cheese; emulsion gels and bigels as animal fat mimetics; and oil-filled scaffolds designed to more closely replicate adipose tissue to ensure the fat retains its structural profile during cooking rather than melting away. Collaborations such as **Ajinomoto**'s work with **Fattastic** further highlighted interest in combining formulation, structuring, and flavor science. Overall, these developments reinforce that foods are more than just protein.

- **Nutrition, processing, and dietary alignment:** Research continued to refine the global evidence-based understanding of the nutrition of plant-based meat, with growing emphasis on processing nuance, bioavailability, and micronutrient delivery. GFI Europe developed a guide in collaboration with the Physicians Association for Nutrition titled "Where does plant-based meat fit in the ultra-processed foods conversation?," which highlights that plant-based meat has a distinct nutritional profile compared to the average ultraprocessed food and that health outcomes appear more closely tied to nutrient composition than to processing category alone. GFI India similarly contributed to this evidence base through a comprehensive nutritional analysis of plant-based meat and egg products in the Indian market, underscoring the importance of scientifically optimizing plant protein combinations to improve amino acid scores and micronutrient content.

Primary nutritional research this year also advanced the industry's understanding of:

- **How different processing strategies affect nutritional quality:** A summary paper from a team at **ETH Zurich** unpacked how to "process better" when it comes to plant-based foods, designing streamlined production that optimizes for taste, price, and nutrition using less processed, more complex natural raw ingredients. A complementary study identified extrusion parameters that better preserve concentrations of common limiting amino acids.
- **Micronutrients in plant-based meat:** Research exploring the digestibility of iron in plant-based burgers found fortified options offered a good source of iron, even compared to meat-based options. Another analytical study also showed that many vitamins and minerals present in plant-based ingredients are retained in finished products, even prior to fortification.
- **How to address persistent nutrient gaps:** Long-chain omega-3 fatty acids remain a nutritional challenge, as global supply from conventional fishing is insufficient to meet optimal intake and constrained by ecological limits. New research highlighted how alternative proteins could help diversify omega-3 sources by incorporating fats derived from algae—the original source of these essential fatty acids in fish.

As for institutional signals in the private sector, **Impossible Foods**' products that meet specific nutritional criteria achieved U.S. NSF Certified for Sport certification, a requirement to sell to Major League Baseball and the National Hockey League.

Photo credit: Dream Factory & Moving Mountains Foods

Hybrid and blended product development: Hybrid and blended approaches continued to emerge as strategies to improve sensory performance and broaden pathways to market adoption. Research and commercialization explored combinations of plant-based ingredients with fermentation-derived or cultivated components (hybrid products) or plant-based ingredients with conventional animal ingredients (blended products).

- **Plant-based + fermentation-derived:** Companies and researchers explored the use of fermentation-derived ingredients to enhance structure, stability, and safety in plant-based foods. **Beyond Meat** released a whole-cut mycelium-based steak, while **MicroTec** developed starter and protective cultures to improve the texture and food safety of plant-based products. Academic research, including reviews drawing on insights from traditional fermented legumes, highlighted how fermentation-informed approaches can support plant-based meat innovation.
- **Plant-based + cultivated meat:** Early-stage research around combining cultivated meat with plant-based matrices focused on improving sensory and overall product quality. A first-of-its-kind publication from Imperial College London's Bezos Centre for Sustainable Protein reported co-extrusion of pea protein and cultivated beef to enhance texture and sensory quality. A comprehensive review further detailed co-extrusion for hybrid product development.
- **Blended products:** Blended products received growing attention as a potential pathway to broader consumer acceptance. GFI APAC and NECTAR released a large-scale consumer sensory study indicating that blended products can appeal to a wider set of consumers, though most formulations would require further R&D to achieve meaningful market share. Academic research continued to expand, with primary studies emerging from Australia, Poland, and Thailand, as well as a comprehensive open-access review examining formulation and quality optimization. This body of work suggests that positioning plant-based meat as a nutritious ingredient blended into conventional meat products that people already consume may support wider adoption. If scaled, blended approaches could enable plant-based meat producers to increase manufacturing capacity, leverage economies of scale, and drive down plant-based food prices across the board—including for fully plant-based products.

✦ *Key takeaway*

In 2025, progress across end-product attributes increasingly reflected a shift from single-ingredient optimization toward more integrated formulation strategies that account for texture, fat structuring, nutrition, and consumer relevance. Advances in functional proteins, fat systems, and nutritional research highlight that improving sensory quality and dietary alignment often depends on secondary and supporting ingredients, not protein alone. Concurrently, hybrid and blended product formats suggest additional pathways to broaden adoption and scale manufacturing, with potential implications for cost and accessibility across both blended and fully plant-based products.

Check out GFI's nutritional profile of plant-based meat.

Engineering viability

Implementation costs

Implementation costs reflect the risks associated with equipment, infrastructure, and the execution of manufacturing processes required to produce plant-based meat at scale. In 2025, efforts to mitigate these risks largely focused on reducing complexity through simplified ingredient systems, streamlined unit operations, and co-optimized manufacturing approaches.

- **Ingredient innovation that lowers implementation costs:** Ingredient developers advanced approaches to reduce implementation costs by enabling adoption without changes to existing manufacturing processes or by simplifying ingredient production methods. **Fabumin** commercialized aquafaba powder produced from legume byproducts to offer a drop-in functional ingredient that can be integrated into existing production processes and support uptake and scaling by allowing manufacturers to avoid redeveloping manufacturing processes or redesigning facilities. On the production side, **RELSUS** opened a new facility in India to produce plant proteins and starches using ultra-precise filtration instead of conventional wet fractionation. **Roquette** introduced a thermally soluble pea starch produced using only heat and spray drying, avoiding enzymes or chemical treatments. **Phytokana** also advanced proprietary processing technologies that avoid heat and chemicals to convert novel fava varieties into protein concentrates and other ingredients.

- **Lower-capital texturization pathways:** Several companies advanced texturization approaches designed to reduce the cost and complexity of manufacturing plant-based meat by relying on ingredients and processes that are less capital-intensive or more easily integrated into existing production lines. **Happy Plant** produced a fava-based extrudate using dry extrusion of flours, while **Roquette** launched a texturized wheat protein positioned as simpler to use than high-moisture extrusion, with reduced need for additional processing or coloring and potential to simplify formulations. Other companies pursued extrusion-free approaches altogether: **SimpliiGood** scaled production of high-moisture texturized protein through a two-step process using fresh spirulina, and **Edonia** advanced similar spirulina-based methods. Together, these developments highlight alternative routes to achieving fibrous texture that may lower equipment and implementation costs, while still meeting sensory and quality expectations.

- **Continuous, automated end-product manufacturing systems:** Beyond ingredients and texturization, targeted equipment innovation also helped reduce implementation cost risk in 2025. **Rebellyous Foods** commercially launched their Mock 3 production system, which illustrates how purpose-built manufacturing equipment can support more continuous, automated, and just-in-time production of plant-based meat products. By streamlining end-product processing for high-volume formats such as nuggets and patties, Mock 3 highlights how equipment design can influence manufacturing efficiency and cost at scale.

✦ *Key takeaway*

Advances in ingredients, texturization, and manufacturing systems in 2025 point to multiple pathways to reduce implementation costs by simplifying how plant-based meat is produced, including through simplified ingredient production, more efficient processing steps, and more efficient manufacturing equipment. However, for these approaches to meaningfully reduce risk, they must be seamlessly integrated

into manufacturing without compromising product quality or sensory performance.

Process complexity

Process complexity risks arise from the need to integrate many interdependent inputs and processing steps into a reliable, standardized production system for plant-based meat. In 2025, efforts to address these risks focused on alternative structuring approaches and improved characterization methods to better understand how ingredients and processing parameters influence final product properties.

- **Fiber spinning:** Fiber spinning continued to attract interest as an alternative approach to extrusion for creating texture in plant-based meat, with implications for how structures are generated and controlled. Research from Japan examined wet-spinning methods for producing aligned protein fibers, while U.S. startup **Tender Foods** (now **Lasso**) raised additional funding to scale their fiber-spun protein platform. The company reports that their process can generate fibrous textures without high heat or added binders and can be applied across a wide range of ingredients. These developments highlight fiber spinning as a distinct structuring route that may shift where complexity arises in production, introducing better process control and standardization potential compared with more established texturization methods.
- **3D printing:** 3D printing continued to develop as an approach to highly tailored plant-based meat products. Academic work, including a review examining 3D printing as a means of incorporating food by-stream materials into food products, highlighted its potential to support waste reduction and ingredient valorization, while a related study demonstrated the use of camellia seed cake in 3D-printed plant-based meat. In parallel, companies such as **Redefine Meat** advanced commercial applications, unveiling a "next-generation" line of products using additive manufacturing. These efforts suggest that 3D printing may offer a different approach to managing process complexity by consolidating multiple manufacturing steps and enabling product customization without changing molds or tooling, though scalability and throughput remain key considerations.
- **Extrusion:** Extrusion research continues to improve both performance and predictability. A collaboration between Korea University and the University of Massachusetts Amherst found that an in-line salt-solution injection can act as an ionic modulation strategy to enhance fibrous network formation and structural anisotropy in high-moisture meat alternatives. Beyond individual process innovations, a substantial body of work focused on opening the "black box" of extrusion by systematically examining how ingredient inputs and processing parameters influence final product structure and properties. Research led by European teams mapped anisotropic structure formation in soy protein during high-moisture extrusion and assessed multiscale structure development ex situ, while work from GFI grantees explored how protein type, extrusion zone, and processing parameters affect texture, integrity, anisotropy, and protein chemistry in extruded systems. Collectively, these efforts contribute to a more mechanistic understanding of extrusion,

supporting improved process control and reduced variability in end products.

- **Expanded characterization approaches:** A growing body of research focused on improving characterization tools to better understand how ingredient and process variables translate into sensory and structural outcomes, an important prerequisite for managing process complexity. Studies demonstrated the use of time-domain nuclear magnetic resonance as a nondestructive method to profile internal microstructure and cooking dynamics of plant-based burgers, with comparisons to conventional beef highlighting its potential for process monitoring and quality control. Other work explored mass spectrometry imaging as a means of mapping spatial ingredient distribution within complex food matrices, offering insights relevant to both formulation and production. Advances in flavor characterization applied combined analytical techniques to compare volatile profiles across a range of plant proteins and to identify key aroma precursors through enzymatic and machine-learning approaches for enhanced beef tallow flavor. These efforts point to increasing emphasis on measurement and characterization tools that can support more predictable processing and reduce uncertainty across formulation and manufacturing steps.
- **Freeze alignment:** Freeze alignment attracted growing research attention as a cold method for creating aligned, fibrous structures in plant-based meat. Multiple academic studies explored directional freezing strategies, including controlled release of gelling agents using double emulsions (by a GFI grantee), and the development of emulsion gel meat analogues using the freeze-alignment technique. Additional work applied machine learning to optimize freeze-structuring parameters for fibrous chicken products. In parallel, **New School Foods** continued to advance freeze-aligned whole-cut products, expanding from salmon into beef and highlighting how directional freezing can enable products that start raw and cook similarly to conventional meat. These efforts position freeze alignment as an alternative structuring route that is gaining momentum.

✦ *Key takeaway*

Efforts to address process complexity are increasingly focused on improving predictability and control rather than simplifying processing steps. Alternative structuring approaches such as fiber spinning, 3D printing, and freeze alignment, alongside a deeper mechanistic understanding of extrusion and expanded characterization tools, reflect a broader shift toward understanding how inputs, parameters, and structure formation interact. These advances point to gradual progress toward more standardized, reproducible production of plant-based meat, even as multiple pathways with distinct process tradeoffs continue to coexist.

Check out the full directory of GFI's Research Grant Program Projects.

Innovation capacity

Process validation

Process validation reflects the extent to which plant-based meat technologies have been tested, replicated, and evaluated across different settings over time. In 2025, several developments strengthened the field's shared evidence base, pointing to gradual progress in reducing process validation risk through open-access research, shared standards, and greater alignment between academic and industry efforts—even as challenges related to siloed information and limited cross-validation persist.

- **Expanded focus on sensory science:** Efforts to strengthen sensory validation continued through large-scale, open-access initiatives. NECTAR released their Taste of the Industry 2025 report, more than doubling the number of products, categories, and consumers tested compared to the 2024 study, making it the largest open-access consumer sensory study of plant-based meat to date. The report was made publicly accessible through an interactive data dashboard, helping identify priority areas for product improvement. Complementing this work, GFI released a sensory best practices guide, which emphasizes that integrating sensory science throughout the product development lifecycle is essential to achieve widespread adoption.
- **Open-access ingredient and formulation data:** Initiatives to reduce process validation risk increasingly emphasized shared data infrastructure. A new European Cooperation in Science and Technology (COST) Action relevant to alternative protein researchers, INFOTECH-DATA (INternational FOod TECHno-functionality-DATA), was launched to support the development of open-access databases containing comparable techno-functional data for food ingredients. COST Actions are designed to facilitate networking and knowledge-sharing across academic and applied research communities, and this initiative highlights growing recognition that standardized, accessible data can accelerate design–build–test–learn cycles. Such efforts build on prior foundational studies—such as a 2024 comprehensive analysis of the composition and functional properties of commercial plant protein ingredients and a 2025 detailed textural characterization of conventional meat tissues, which, while not transformative on their own, provide reference datasets that enable more reproducible formulation, modeling, and process development across the field.
- **Emerging standards and labeling frameworks:** The International Organization for Standardization (ISO) published a new standard for plant-based food labeling, providing a unified framework intended to improve clarity and consumer confidence across markets. Complementary efforts, such as a study out of the University of Stirling on clean food consumerism, offer guidance for more transparent and consistent labeling of plant-based foods. These initiatives signal increasing alignment and standardization across the field, supporting process validation by reducing ambiguity and helping ensure products are developed and evaluated against clearer, shared expectations.

✦ *Key takeaway*

Across sensory science, shared data infrastructure, and emerging standards, 2025 saw incremental progress in strengthening the evidence base needed to validate plant-based meat technologies across settings. While information silos and limited cross-validation remain, increased availability and use of open-access studies, reference datasets, and common frameworks point to improving innovation capacity through more reproducible and comparable development practices.

Check out GFI's quick-start guide to sensory evaluation for alternative proteins.

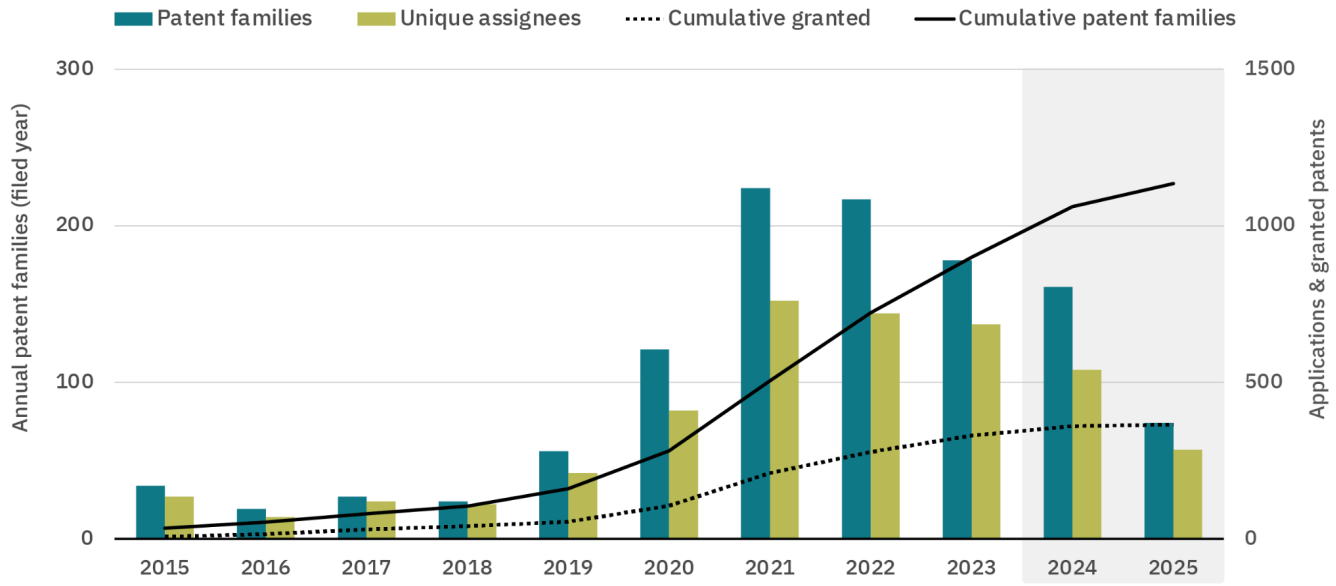
Scientific ecosystem

Patent landscape

Over the past decade, more than 1,100 unique plant-based meat patent families have been filed globally, reflecting substantial ecosystem growth and sustained innovation activity. While patenting accelerated rapidly through the late 2010s, activity since 2022 has remained historically high, even as year-over-year growth has moderated. This pattern is consistent with post-surge normalization rather than a retreat from innovation, and aligns with recent external analyses showing that recent filing volumes remain among the highest on record. External jurisdictional analyses further suggest that recent global declines have been driven primarily by reduced U.S. filings, which saw a 37 percent drop between 2022 and 2023. Interpretation of the most recent years is further constrained by the approximately 18-month delay between patent filing and publication, meaning that 2024 and 2025 data is incomplete and should be interpreted cautiously.

The figure below shows the number of plant-based-meat-focused patent families filed each year alongside the number of unique assignees. Together, these trends indicate both sustained patent activity and increasing concentration among a smaller number of organizations. Such consolidation is characteristic of maturing food and agriculture domains and may also reflect a shift toward incremental optimization, process refinement, and scale up rather than exploratory category creation. Similar patterns of plateauing patent volume alongside continued cumulative growth are observed in GFI Europe's recently published regional patent landscape analysis.

Figure 18. Annual patent families and unique assignees from 2015 to 2025
by filed year

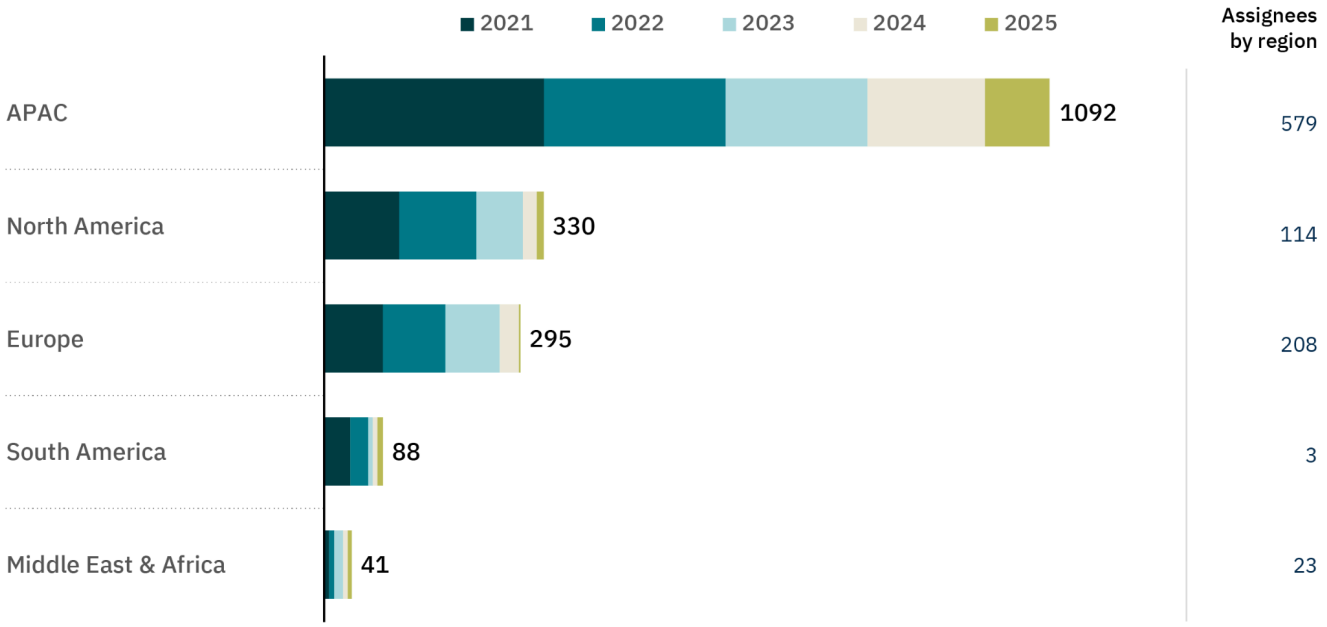


Annual patent families and assignees and cumulative families and granted patents from 2015 to 2025 by filed year. Source: Data sourced from Dimensions, an interlinked research information system provided by Digital Science (www.dimensions.ai). A note on data: 2024 and 2025 filing numbers are incomplete and do not accurately inform complete activity as patent publication can be delayed up to 18 months after filing.

To better understand the geography of plant-based innovation, patents were analyzed by both filing jurisdiction and assignee primary location. Filing data indicates where applicants are seeking protection, while assignee location reflects where inventive activity is anchored geographically. Across both measures, China accounts for the largest share of filings and inventors, followed by the broader Asia Pacific region, North America, and Europe. Together, these figures suggest that plant-based meat innovation remains globally distributed.

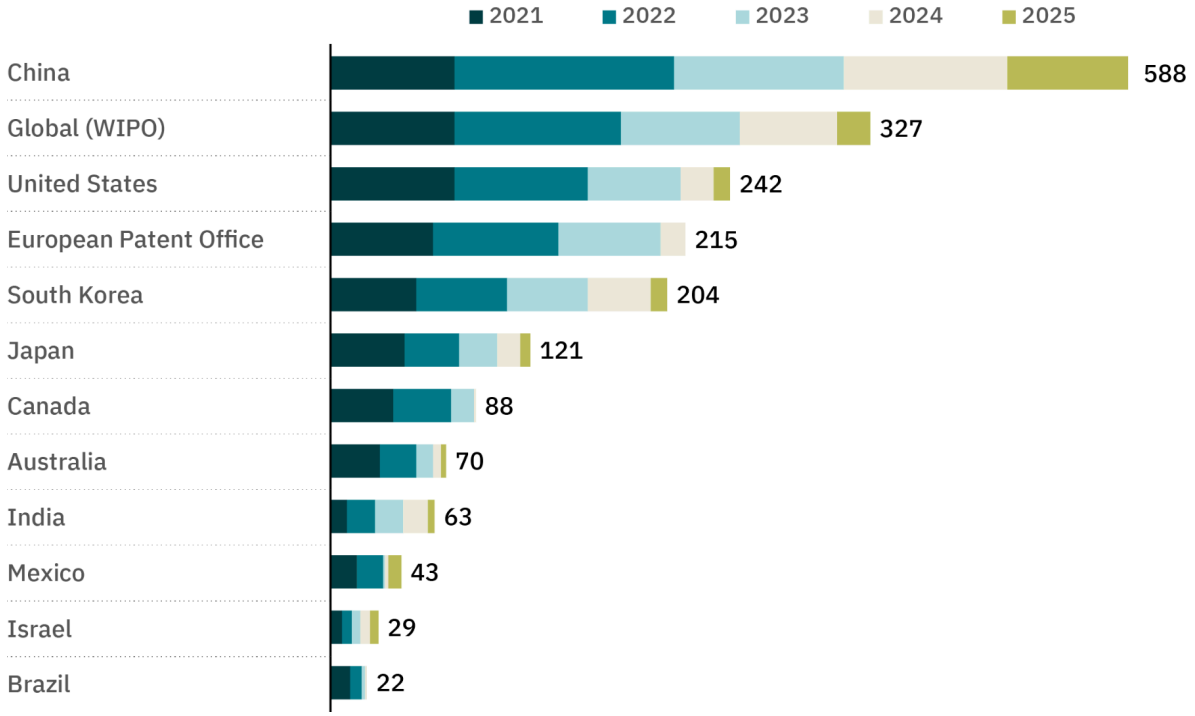
Figure 19. Global plant-based meat patent filings by filing jurisdiction and assignee location

By filed year and application origination jurisdiction



Global plant-based meat patent filings by region between 2021-2025 based on applications filed in regional intellectual patent offices (IPOs) (left) with number of assignees by location (right). Regional IPOs are in order of jurisdiction patent counts, excluding filings under the World Intellectual Property Organization.

Figure 20. Plant-based meat patent filings, top 10 jurisdictions



Expanding on our 2024 patent landscape, the methodology used keyword patent title and abstract (TA) searches and TA exclusions. Duplicate patents (by family ID and jurisdiction) were removed, and remaining patents were manually screened to ensure relevance to plant-based meat (excluding pet food-only disclosures), hybrid formulations primarily focused on fermentation, and blended products unless predominantly plant-based. Additional duplicate filtering consolidated records with identical titles, abstracts, assignees, and dates, even when assigned different family IDs. Assignee legal filing names were manually translated and curated by the most relevant company name and inventor location. Are we missing something? Please let us know by filling out our company database edits form or contact us at corporate@gfi.org.

Regional ecosystem developments

Rapid growth in research output, funding, and institutional networks regionally was strong in 2025. GFI Europe's analysis shows that plant-based protein research accounts for approximately two-thirds of alternative protein publications and has driven the majority of growth in European alternative protein research output since 2020. GFI Europe also published their first regional deep dives on the DACH (German, Austrian, and Swiss) and Nordic ecosystems, highlighting increasing coordination and specialization across European innovation hubs.

New academic and translational infrastructure further strengthened regional capacity. The world's first master's program dedicated to alternative proteins launched in Spain, focused on plant-based, fermentation, and cultivated food systems, and will welcome its first cohort in the 2026–2027 academic year. New dedicated sustainable protein research hubs were established in Israel, Sweden, and India, as well as a Nordic-wide knowledge and innovation network to improve ecosystem connectivity.

In parallel, regional bioeconomy initiatives continued to translate research into infrastructure and economic development. In the United States, **BEAM Circular** secured $10.4 million in public funding to advance shared bioproduction infrastructure in California, including a pilot- and demonstration-scale bioeconomy campus, which supports projects such as converting agricultural sidestreams into value-added food ingredients.

While no single solution dominates, the breadth of progress in 2025 highlights a growing foundation for scale. Continued collaboration, shared learning, and sustained focus on the technical drivers of taste, cost, and scalability will be key to converting advances into real-world impact.

Government and regulation

Overview

Public investment in plant-based protein sources continued at a steady pace around the world, with governments focusing on developing new markets for local crops, valorizing sidestreams from agriculture, and improving the health and sustainability of domestically produced foods. In a year that brought tumultuous trade disruptions and a heightened awareness of the food system's fragility, governments introduced new scientific and economic efforts to ensure stability through developing and producing new sources of plant protein.

Emblematic of this trend is France's "protein sovereignty" program, a wide-ranging economic program to support the pulse sector that recognizes plant proteins as a powerful tool for building a resilient local food system. Protein Industries Canada likewise undertook specific efforts to re-source plant proteins from within Canada, including co-funding a new pea protein processing plant, while numerous countries within the European Union also began or accelerated efforts to develop new plant-based protein sources from domestic resources.

While investment in plant protein sources remains most prominent in the Americas, Europe, and Australia, governments all around the world supported the development and production of these foods, with notable research and funding efforts underway in Brazil, Canada, Denmark, Germany, Japan, South Korea, and more. Amid broad biotechnology pushes from most major economies, plant-based protein products often took lower priority than fermentation-derived proteins, a trend in keeping with 2024.

However, R&D cut across technology methods more frequently, with a larger number of projects and programs aiming to combine plant-based protein with fermentation-derived or cultivated foods to maximize their appeal, performance, and sustainability.

At the same time, regulatory authorities continued to debate the proper labeling of plant-based protein products, with developments that both expanded and further restricted how companies can label their products. Crucially, research shows that consumers do not find the use of meat terms misleading when foods are properly described as plant-based, and that these terms provide important information on taste and preparation that make these foods easier to use (See "European Consumer Outlook"). Allowing the proper use of these terms on labels should be considered a priority if governments are to realize the benefits of plant-based foods for farmers, the environment, and public health.

Overall, plant-based proteins and other new protein sources continue to gain prominence in government plans to build resilient, sustainable, and thriving food systems. Public research to improve the taste, price, nutrition, and perception of these products, as well as public support for building facilities and meeting consumer demand, will help bring these goals to fruition.

Global public investment

Americas

Brazil

The state of São Paulo took a leading role in supporting public research in plant-based protein sources in 2025. Five new research projects funded by the São Paulo State Research Support Foundation investigated the digestibility, texture, and structure of various plant-based meat and dairy formulations.

Canada

Protein Industries Canada (PIC), the plant protein supercluster backed by CAD 150 million ($112 million) over five years (2023–2028), continued to announce new and renewed public–private partnerships to build Canada's plant protein production capacity, research leadership, and business ecosystem. These efforts, ongoing since 2018, took on a new salience in 2025 as the closely intertwined agricultural trade relationship between the United States and Canada was rattled amid escalating tensions.

In response, PIC undertook new programs to support companies in sourcing from Canadian suppliers, build pea protein processing plants, and develop products from Canadian crops like fava and oats. PIC also worked with international partners in the UK on a CAD 1.5 million ($1.1 million) joint research effort to commercialize lupin protein and in Singapore to facilitate a market entry program for Canadian exporters in Asian markets, as well as sharing best practices for building a plant protein cluster with representatives from the Indian state of Maharashtra (see "India").

Several of PIC's projects illustrate the synergies between new protein sources and the many potential benefits for farmers and rural communities. In 2025, PIC provided CAD 6.3 million ($4.5 million) in funding to a project to scale up fava bean processing, with one of the project partners being a biomass fermentation company using these Canadian-grown inputs to develop mycoprotein. The Ocean Supercluster, one of the four other Global Innovation Clusters funded alongside PIC with a mandate to expand Canada's ocean economy, awarded CAD 750,000 ($550,000) to a project to scale up plant-based and fermentation-enabled seafood production. Additional research on plant-based proteins began or continued at Canadian universities funded by the Natural Sciences and Engineering Research Council of Canada.

United States

The United States drastically scaled back all federally funded R&D in 2025, cutting the number of new grants awarded by the National Science Foundation (NSF) by 25 percent in 2025 and leading to an estimated 25,000 scientific research jobs lost from federal agencies and 20,000 scientific research jobs lost in the private sector. The United States is also expected to lose its position as the world's largest R&D funder to China in 2026. As a result, after consistently rising from 2021 to 2024, federal investments in plant-based R&D likewise declined. In doing so, the United States bucks the global trend of investing competitively in new protein sources, including those made from local agricultural products and sidestreams.

Despite this decline in federal support for science and technology in 2025, some general-purpose R&D programs worked to maintain the United States' scientific and entrepreneurial leadership in the sector through research and business grants. The United States Department of Agriculture continued research on plant-based proteins with several new projects to:

- Train food science students on alternative protein methods at San Diego State University (CA-51).
- Improve plant-based meat quality and enhance shelf life at North Carolina State University (NC-02).
- Develop more accurate methods for ensuring food safety at Chapman University (CA-40).
- Create new plant-protein sources from brewer's spent grain, a high-volume sidestream of the U.S. beer industry, at George Washington University (DC-AL).
- Design new processing methods for better plant-based meat texture at the University of Massachusetts Amherst (MA-02).

Additionally, NSF designed an International Research Experiences for Students program through the University of Tennessee, Knoxville (TN-02) to place U.S. engineering students in alternative protein labs in New Zealand.

Despite the dip in investments from the federal government, some U.S. state governments took notable actions to support the development and production of plant-based protein sources in 2025. California announced three initiatives in 2025 that will advance plant-based proteins as part of a suite of new food production systems, underscoring the state's pursuit of leadership in food production, processing, and innovation. The California Jobs First Regional Investment Initiative, an innovation engine focused on key development regions, awarded over $10 million to BEAM Circular (CA-05) to build the California Bioeconomy Innovation Campus, a bioproduction facility that will allow researchers and startups to test products from pilot scale to demonstration scale, addressing a key infrastructure gap.

California Jobs First also committed nearly $1 million to the University of California Agriculture and Natural Resources to build a Plant Food and Agricultural Innovation Center, a research facility that will include plant-based protein processing capacity alongside cultivated meat and fermentation equipment. Further shoring up the state's research leadership, the California legislature earmarked $1 million for the University of California, Davis' Integrative Center for Alternative Meat and Protein (CA-04), a nationally leading hub for plant-based, fermentation, and cultivated meat research.

Finally, Illinois' Alternative Protein Innovation Task Force, a team convened in 2024 to study the landscape of alternative proteins in Illinois and develop policy recommendations, released its final report in December 2025, making firm recommendations that the state support biomanufacturing for alternative proteins through funding programs, research leadership, workforce development initiatives, public procurement, and smart, clear regulation.

Asia Pacific

Australia

Australia's Industry Growth Program, an initiative to build manufacturing capacity through commercialization grants to startups, offered AUD 1.2 million ($750,000) grant to a plant-based dairy company to increase production and exports of a hybrid plant-dairy cheese. The Australian Research Council also funded collaborative research on plant proteins between the University of New South Wales and the National University of Singapore.

China

China's No. 1 Central Document—the first policy statement released by the Central Committee of the Communist Party of China and the State Council each year—included among 2025's goals "Building a diversified food supply system," including efforts "to cultivate and develop biological agriculture and explore novel food resources." The central document specifically mentions a need for "expanding food sources through multiple channels," including fungal and algae-based protein extraction—techniques used in the development of many plant-based and fermentation-derived products.

China's investments in "new proteins" grew both larger and more explicit in 2025, with a variety of actors at the national, state, and municipal levels announcing new investments in biotechnology research, industry development, and infrastructure. In February 2025, the Ministry of Agriculture and Rural Affairs released a plan to revitalize rural economies pursuant to the No. 1 Central Document, advocating for investment in biotechnology-enabled agriculture, exploration of new food resources such as plant-based meat, and the development of algae-based foods.

While China announced significant investments in biotechnology and biomanufacturing in 2025, including nearly $1 billion in investments from the State Development & Investment Corporation, it is unclear to what extent these investments will support the further scaling of plant-based protein production or product development. Though the full scope of China's investment in alternative protein research and commercialization is not consistently made public, the announced efforts in 2025 point to a robust, economy-wide effort to provide new protein companies with the capital and policy support needed to overcome technological hurdles, achieve scale, and gain market share.

India

India's BioE3 policy (Biotechnology for Economy, Environment, and Employment) moved from concept to reality in 2025 with the Department of Biotechnology inviting the first round of proposals for research and startup funding for "smart proteins," the recipients of which are set to be announced in early 2026. This round of proposals emphasizes transformative research to enhance protein production efficiency, safety, and affordability while addressing scalability challenges, all key considerations for developing a robust industry and a stable, diversified food supply.

At the state level, the Indo Pulses Development Association (IPDA), a commodity stewardship council under the aegis of the Government of Maharashtra and supported by the World Bank, has organized multiple rounds of technical and policy dialogue to strengthen the pulse ecosystem and mobilize partners around a proposal to establish a plant protein cluster in the state. In August 2025, members of IPDA visited Protein Industries Canada (See "Canada") to learn more about the infrastructure and technology required for large-scale industry promotion through a plant protein cluster.

Additionally, the state of West Bengal invited GFI India to speak on the potential of plant-based proteins at the annual Bengal Business Summit. Bringing together businesses in the food processing ecosystem, the summit discussed emerging food technology and how

the state's vibrant food processing industries can make the most of the opportunity.

Japan

In November 2025, Prime Minister Takaichi announced the National Growth Strategy, which identifies 17 national strategic sectors for investment including "food tech," overseen by the Ministry for Agriculture, Forestry and Fisheries (MAFF), and "synthetic biology and biotechnology," overseen by the Ministry of Economy, Trade and Industry. The ministries will submit proposals to the Council for Japan's Growth Strategy, with the plan scheduled to be announced in June 2026.

Research on plant-based proteins in Japan continued through projects funded by the National Agriculture and Food Research Organization's Bio-oriented Technology Research Advancement Institution, the Japan Society for the Promotion of Science, and MAFF. This research investigated the application of traditional food techniques to plant protein sources, such as applying the *koji* fermentation process to plant-based meats, as well as developing protein-rich crops and new products from plant processing sidestreams.

At the city level, the "Next Kitchen" conference, jointly organized by the Japan External Trade Organization, Hyogo Prefecture, and the city of Kobe, matches local and global food tech startups looking to expand to Japan, inviting about 10 startups from Europe and Asia annually to collaborate with Japanese companies in the "city of gastronomy." This cohort has included several startups working in alternative proteins, including plant-based products.

New Zealand

The Ministry of Business, Innovation and Employment co-funded a joint research program with Singapore in which researchers from both countries will develop meat products that include both cultivated meat and plant-based ingredients. The project aims to match the strengths from both types of protein to create meat alternatives that are tasty, affordable, and resource-efficient.

Singapore

Eleven new research projects began through the Singapore Food Agency's Future Foods and Food Safety grant programs in 2025, at least one of which will focus on plant-based foods. The "NutriBoost" project under the Future Foods Grant seeks to leverage "novel food processing, flavor science, and AI to enhance the nutrition, texture, and taste of sustainable alternative proteins." Singapore's Agency for Science, Technology and Research also co-funded a Singapore-New Zealand Biotech in Future Foods Research Programme project to develop meat products that include both cultivated cells and plant-based ingredients (see "New Zealand").

The Bezos Centre for Sustainable Protein at the National University of Singapore and Enterprise Singapore launched a startup competition to fund three alternative protein startups with SGD 175,000 ($135,600) toward anchoring key activities in Singapore.

South Korea

South Korea continued government support for protein diversification at several levels, funding research through several agencies and working to build the country's infrastructure to better support a future food industry. High-level support for food technology was evident at the 2025 World FoodTech Forum in Seoul. President Lee Jae-myung sent congratulatory remarks, read by the Agriculture Minister, which emphasized the importance of food technology in addressing climate change, food security, and demographic shifts. The Speaker of the National Assembly, Woo Won Shik, referred to alternative foods as one of these key food technologies.

The Ministry of Agriculture, Food, and Rural Affairs (MAFRA), the Ministry of Food and Drug Safety, the Ministry of SMEs and Startups, the Ministry of Education, the Ministry of Oceans and Fisheries, and the Ministry of Science and ICT together funded at least 14 new research projects concerning plant-based proteins in 2025, reflecting a whole-of-government approach to advancing food science and biotechnology research.

The municipal government of Iksan City and Jeonbuk Province jointly announced the creation of a Jeonbuk Innovation Success Venture Fund with KRW 30 billion ($20.8 million) to support food technology companies based in the region. One of the seven initiatives outlined in the announcement is "Plant-based food manufacturing," in addition to several more that pertain to cultivated and fermentation-derived proteins. Jeonbuk Province also signed a Memorandum of Understanding with the Embassy of the Netherlands in Korea to jointly promote all three new protein production systems.

In December 2025, South Korea enforced the Food Tech Industry Promotion Act, establishing a legal and administrative framework for MAFRA to support plant-based foods, precision and biomass fermentation, and cultivated meat. The Act empowers MAFRA to provide direct support to businesses, offer startup assistance, facilitate access to research facilities and equipment, and foster market entry. The Act also allows MAFRA and companies to collaborate to address regulatory bottlenecks, rather than having companies navigate the regulatory process independently.

Thailand

Thailand's Office of the National Higher Education, Science, Research, and Innovation Policy Council (NXPO) identified alternative proteins as one of Thailand's core future food policy priorities at an expert forum convened in January 2025. In November, NXPO issued a "Development Opportunities for Thailand's Alternative Protein Industry" report identifying development opportunities for plant-based, cultivated, and fermentation-derived proteins.

In a bid to establish Thailand as a regional hub for advanced manufacturing and innovation, in 2025 the government announced THB 5 billion ($153 million) in funding to support upskilling at least 100,000 people to work in "biotechnology, advanced agriculture, electronics, food processing and medical devices," among other key areas. The government plans to work with investors and manufacturers to develop curricula and identify areas of need, targeting both university students and the current workforce.

Europe

The European Union

The European Union continued to support the development and consumption of innovative plant protein products with research grants, loans, and wide-ranging development projects. These efforts centered around improving the taste and appeal of products, as well as developing new ingredients from agricultural sidestreams and new processes for their mass production.

The European Investment Bank (EIB), which in 2024 made a pioneering €20 million ($22.2 million) loan to Denmark's **Matr Foods** to finance the construction of a mycelium biomass facility, followed up in 2025 with multiple large loans to businesses across the technology spectrum, including two plant-based protein businesses:

- €20 million ($22 million) to Spain's **Heura Foods**, to develop and scale nutritious, high-protein plant-based meat (See "Spain")
- €50 million ($55 million) to Sweden's **Lantmännen farming cooperative** to build a pea protein factory (See "Sweden")

Research on plant-based proteins was funded by the European Commission's Horizon Europe funding program at universities and public research organizations across the continent, including research at the University of Limerick in Ireland to make a plant-based protein drink from canola sidestreams and improve oat-based cheese with fermentation, at the Technical University of Munich to apply the science of taste to plant-based product development, and at Ireland's Teagasc to investigate the potential of bioactive compounds from edible flowers in hybrid plant-dairy beverages.

Horizon Europe also undertook a nearly €6 million ($6.2 million) program to connect and build up research centers in Türkiye, Greece, and Ukraine with the specific goal of increasing their capacity to innovate new plant proteins and train workforces in their production. Horizon Europe also funded APRISE ("Alternative Proteins Research and Innovation Skills Enhancement"), another project to provide workforce development, technical training, and shared resources with countries without strong food tech sectors, including Greece, Malta, North Macedonia, Poland, and Türkiye.

Belgium

The regional government of Flanders initiated the Green Deal Protein Shift on Our Plates 2.0, a consumption-focused policy framework designed to transition diets toward a greater adoption of plant-based or otherwise sustainable protein sources. The program targets a dietary composition of 60 percent plant and 40 percent animal proteins by 2030, and explicitly acknowledges fermentation and cultivated meat as promising paths to this goal. However, the framework currently lacks specific measures concerning innovation, funding, or regulatory support for these technologies.

Denmark

Denmark expanded the country's ongoing leadership in advancing plant-based protein sources with an additional policy focus on fermentation-derived proteins in 2025. The Danish government earmarked approximately DKK 460 million ($73.7 million) in funding for biosolutions between 2026 and 2029, with DKK 100 million ($15.7 million) in 2026 alone, through the Innovation Fund Denmark, a funding opportunity expected to include plant-based foods and fermentation-based food production. The Danish Chamber of Commerce joined a new Plant-Based Diplomacy initiative, along with other members of Danish civil society, to encourage the European Commission and European Parliament to adopt

supportive policies toward plant-based foods, as Denmark has done.

The Green Development and Demonstration Programme announced two new projects concerning plant-based foods:

- LinkingOat, "to promote the sustainable cultivation of oats and the production of high-quality, oat-based foods," with the Danish Institute of Technology, Aarhus University, and several industry partners.
- "Interdisciplinary Future Food Network (IFFN)" with Kost Studio, which aims to build an interdisciplinary network to map and propose solutions to food system challenges, and help develop novel proteins.

AgriFoodTure, a Danish research program funded by NextGeneration EU's Recovery and Resilience Facility, began 36 new research projects under Denmark's AgriFoodTure partnership, including a project to improve plant-based cheese.

France

Following past support for France's pulse sector, the 2025 announcement of public investment in 10 projects advancing "protein sovereignty" underlines the government's prioritization of domestic, sustainable food sources as a driver of food security and local prosperity. These projects will work at various stages of the food system, including encouraging the cultivation of protein-rich crops on farms, developing more processing capacity and more technologically advanced systems, and promoting plant proteins in diets. While not specifically focused on plant-based meat and dairy, the upstream and downstream initiatives show how the development of these alternatives can support national efforts to build resilient food systems.

Germany

Germany's coalition government collapsed in late 2024 over budget issues, leaving the country without a federal budget for over nine months and halting initiatives like the previously announced national protein strategy. Snap elections in February 2025 led to a new government in May, which expressed a similarly positive approach toward alternative proteins:

> *"We are committed to a comprehensive and ambitious EU protein strategy and will strengthen domestic cultivation of protein crops in order to reduce imports. We will advance the development and market introduction of sustainable alternative proteins."*

As a result, alternative proteins were included in the German government's High-Tech Agenda, which explicitly called for using biotechnology for new protein sources and mobilizing public investments to fuel innovation. The German government also continued to promote protein diversification through the 2025 and 2026 budgets of the Federal Ministry of Agriculture, Food and Regional Identity, including €18 million ($18.6 million) in 2025 and another double-digit million amount in 2026.

Most of the publicly funded research on new proteins focused on the plant-based sector. A number of projects from the Federal Ministry for Agriculture and Food identified new protein sources from domestic crops, while research funded by the Federal Ministry for Economic Affairs and Energy worked to improve the juiciness and texture of plant-based meat and create a machine-learning-driven database of protein functionality.

Netherlands

Though most public investment in the Netherlands is oriented toward cultivated meat and fermentation, in 2025, the Dutch Research Council began a program alongside plant-based startups to conduct consumer research on prototypes and develop strategies for increasing product appeal.

Norway

The Research Council of Norway began a project to evaluate alternative meat consumption and consumer uptake in Asia at the University of Oslo, in collaboration with partners in the United Kingdom and Vietnam, to uncover best practices for stimulating demand in Scandinavia.

Russia

The government of Russia made their first known investment in the science of plant-based foods with a research project to develop a vitamin-enriched oat milk.

Sweden

The Swedish Research Council began functional research to improve the shelf life of plant-based meat products at Chalmers University, and social research on Food Innovation Enabling Sustainable Transition (FINEST) at the RISE Research Institutes of Sweden.

The European Investment Bank's €50 million ($55 million) loan to the Lantmännen farming cooperative (See "European Union") to build a pea protein factory in Sweden follows the cooperative's receiving a 2022 grant from Sweden's Environmental Protection Agency to begin planning the facility and a 2024 research grant from Formas to continue innovating tasty, nutritious products, illustrating the pathway from early public investment to commercial-scale support, yielding benefits to agricultural communities and consumers.

Switzerland

Three research projects from Innosuisse and the Swiss National Science Foundation advanced plant-based foods as drivers of sustainable, local food systems: finding better binding agents for plant-based meat, developing new functional products from local pea production sidestreams, and planning for a more sustainable Swiss food system through plant-based proteins and oils.

United Kingdom

The UK government began developing a new national food strategy for England in 2025. In its vision for the food system, The Good Food Cycle, the UK government emphasizes alternative proteins as an economic growth opportunity that supports more sustainable food production. Implementation of the food strategy is expected in 2026.

Innovate UK continued to support foundational R&D in collaboration with the private sector, including a project to develop high-quality plant-based dairy alternatives made with hemp seeds grown in Wales. The National Alternative Protein Innovation Centre, a public research collaboration founded by the UK government in 2024, undertook nearly 30 new research projects spanning plant-based, fermentation-enabled, and cultivated proteins, working on new production methods, sidestream utilization, and taste and texture improvements. These research projects included collaborations with Beijing Technology and Business University, McDonald's UK, and Nestlé.

Israel

In 2025, the Israel Innovation Authority (IIA) directed approximately NIS 90 million ($28 million) to food technology programs, of which around NIS 49.5 million ($15.5 million) specifically targeted alternative proteins. These investments were aimed at strengthening Israel's capabilities in areas such as food biotechnology, precision fermentation, and artificial intelligence, all situated within a rapidly scaling climate technology ecosystem. By the end of 2025, cumulative investments from the IIA in alternative proteins reached approximately NIS 325 million ($100 million). While the portion of the 2025 funding allocated to plant-based meat was not available at the time of publication, past Israeli investments have spanned all three production methods while maintaining focus on biotechnology.

Note: All information on IIA investments and priorities was provided directly to GFI Israel.

Regulation by country and region

In 2025, governments across major markets advanced new policy initiatives affecting plant-based foods, signaling growing regulatory attention, but uneven levels of support. Plant-based labeling remained a key focus for regulators.

Brazil

At the federal level, the Ministry of Agriculture and Livestock (MAPA) issued Decree No. 12.709 in November 2025, reorganizing inspection requirements for a range of plant-based products, including plant-based meat. Although the decree does not impose immediate plant-based protein requirements, it formally brings these products under MAPA's regulatory authority and signals progress toward the adoption of tailored regulations. Meanwhile, the Brazilian Health Regulatory Agency (ANVISA) has begun developing its own regulatory framework for plant-based foods. In 2025, ANVISA convened an open dialogue and public hearing on this topic and indicated that it would publish regulations for these products soon.

China

In early 2025, the Chinese Ministry of Agriculture and Rural Affairs released Implementation Opinions of the Ministry of Agriculture and Rural Affairs on reforming and revitalizing rural areas. The document proposes advancing bio-agriculture as a strategy for reform, with a specific focus on exploring new food resources such as plant- and algae-based proteins. In a separate policy statement issued in early 2025, the Chinese government identified food system diversification and the exploration of novel food sources, including plant-based foods, as ongoing priorities.

European Union

Following several months of debate and negotiations in 2025, EU policymakers agreed in March 2026 to ban the use of the word "meat" and 31 other meat-related terms for plant-based, fermentation-enabled, and cultivated products despite consistent survey results demonstrating that European consumers support the use of these terms for plant-based products. When the restrictions come into force, companies will no longer be able to use everyday terms such as "steak" and "chicken" to describe their plant-based products, even when accompanied by appropriate qualifiers. Lawmakers agreed to a three-year transition period to enable companies to sell existing stock and adapt to the restrictions. At the time of writing, the text is also subject to final adoption, including a vote in the European Parliament.

At the national level, EU member states generally showed mixed levels of support for plant-based meat in 2025:

- Denmark took on the rotating presidency of the Council of the European Union between July and December 2025. During its tenure, it organized a major Plant Food Summit to spotlight plant-based policy initiatives and pave the way for an EU action plan for plant-based foods.
- The French Conseil d'État annulled two government decrees banning meat terminology for plant-based products, following the 2024 EU Court of Justice ruling that places plant-based labeling under EU, rather than national, jurisdiction.
- The German government publicly opposed the above-mentioned proposals from the EU to ban meat terms on plant-based foods, and a scientific advisory board to Germany's federal government highlighted the role of plant-based foods and other alternative proteins in a sustainable food system.
- The Netherlands Food and Consumer Product Safety Authority issued warnings to plant-based meat companies that a 1998 law restricts the use of the term "minced meat" to animal-derived products, despite companies having used labels like "vegetarian minced meat" and "plant-based minced meat" without pushback for years. However, new dietary guidelines in the Netherlands continued to emphasize plant proteins and formally included plant-based meat as an acceptable protein source when products meet defined nutritional standards.
- The 2025 general election in Portugal paused efforts to implement the National Plant Protein Strategy announced last year. After the election in May 2025, the new Portuguese government reaffirmed this commitment and began internal preparatory work between the Environment and Agriculture ministries.
- Spain launched its first National Food Strategy, recognizing the role of alternative proteins (including plant-based proteins) for the first time, and introduced an Agrifoodtech Sandbox with Navarre and La Rioja to provide technical and regulatory support for the agrifoodtech sector.

India

The Food Safety and Standards Authority of India, the country's food regulator, highlighted alternative proteins in the third iteration of its Global Food Regulators Summit 2025, and particularly discussed the regulatory approaches for alternative proteins in "Dynamic Food Landscapes–A Need for Pragmatic Approaches." A readout from the session calls for exploring "robust pre-market approval processes, process validation and controls for EFTs, and developing adaptive regulatory tools such as risk-based approaches and regulatory sandbox programs that safeguard public health yet foster innovation."

Japan

In 2025, industry association Plant Based Lifestyle Lab (P-LAB) launched a certification system for animal product alternatives, offering an industry counterpart to the existing government Japanese Agricultural Standard (JAS) for "Processed Food Suitable for Vegetarians and Vegans." The existing JAS requires dedicated production lines for products, making it difficult for some companies to comply. The P-LAB certification allows for shared production lines, so long as they are properly cleaned and maintained, solving regulatory hurdles for companies producing both plant- and animal-based products. P-LAB has indicated that they intend to elevate their private standard to an official JAS standard in the future, working with the Food Tech Public-Private Council led by the Ministry of Agriculture, Forestry, and Fisheries.

South Africa

In July 2025, South Africa's Department of Agriculture, Land Reform and Rural Development (DALRRD) issued new regulations concerning the labeling and composition of plant-based meat. The regulations require products advertised as meat alternatives or plant-based meat to contain at least nine percent protein content. Additionally, product names that indicate taste, use, and texture (e.g., burger, sausage, mince) are permitted if used with clear qualifiers that indicate the product is plant- or fungi-based. Animal-specific references to species or anatomy cuts, such as "chicken" or "beef" are prohibited, even if modified (e.g., chick'n) or used with appropriate qualifying terms. This updated regulation follows stricter restrictions proposed in 2022 by DALRRD that were subsequently revisited after feedback from plant-based food companies.

Switzerland

The Swiss Federal Supreme Court ruled that plant-based products may not use animal species terms such as "chicken" or "pork," finding them misleading under Swiss food law even when clearly labeled as plant-based. The 4–1 decision overturned a prior Zurich court ruling and requires manufacturers to rename affected products. Generic meat terms such as "steak" and "schnitzel" are still permissible for plant-based products. Only specific references to animal species are prohibited.

Thailand

In 2024, the Thailand Food and Drug Administration issued draft regulations for plant-based foods that would set technical and labeling requirements. The draft regulations would restrict the use of certain meat and dairy terms on labels, as well as images or symbols that suggest animal origin. As of early 2026, Thailand has not yet adopted these regulations, making them a key regulatory issue.

United States

In early 2025, the U.S. Food and Drug Administration issued draft guidance on the Labeling of Plant-Based Alternatives to Animal-Derived Foods. The draft guidance states that plant-based food labels can include terms associated with animal products, so long as the labels are not misleading. The draft guidance also encourages companies to include primary plant sources of products on labels, instead of only using broad qualifiers (e.g., "chia and flaxseed eggless scramble" instead of "plant-based egg scramble"). Draft guidance is not legally binding, but represents the agency's current approach to applying its regulations.

FDA accepted comments on the draft guidance through May of 2025, but has yet to issue a final guidance.

Conclusion

The world's biggest challenges—climate, public health, food security—are all connected to how we currently produce meat. To address those challenges, we must diversify how meat is made.

Plant-based meat offers one way to do exactly that. Since 2015, the global plant-based meat and seafood retail market has tripled, but still remains a minuscule fraction of the $1.7 trillion global meat market. But consider this: At just 11 percent market share, plant-based meat and other alternative proteins would have a climate mitigation impact equivalent to taking tens of millions of cars off the road.

Innovation and investments that accelerate consumer adoption remain a must. In 2025, facility openings highlighted that long-term investments in next-gen protein infrastructure are continuing to build, product innovation from major brands and retailers stood out, and companies invested in product reformulations to improve taste, texture, and nutritional profiles of plant-based meat. Amid a challenging funding environment, sales declines, and labeling roadblocks that restrict consumer choice, innovators in the field pressed on, capitalizing on trends spotlighting protein and achieving cost and production efficiencies.

In the critical years ahead, there are choices to make that will determine our collective food future. What path will we go down and what will that path look like? A few reflections on imagining a sustainable future, as we lean into the work ahead together:

We can choose a path where meat is made in vastly more sustainable, secure, and safe ways.

There is a path that respects people's food choices and offers options with far fewer adverse impacts than conventional meat. In concrete terms? This looks like friends and families gathered around tables enjoying delicious, nourishing meals that include their favorite foods made in ways they feel good about.

We can choose a path where the meat we eat enables nature to rebound and health to rise.

As meat demand grows, continuing to produce it in status quo ways takes us down a path with zero chance of reducing emissions and reversing biodiversity loss. There is another choice, where, compared to conventional meat production, the meals we eat actually strengthen public health and help protect the natural world.

In concrete terms? This looks like a delicious plant-based steak or salmon filet used in a favorite everyday recipe, all while an overfished ocean recovers, fragments of forest reconnect, and pandemic-triggering conditions are no longer part of our global food system.

We can choose a path that builds a thriving world, fed sustainably.

There is a path that leads to abundance, not scarcity. We can build a better food system for all, one that feeds a population nearing 10 billion while mitigating multiple risks at once.

On that path, plant-based meat will need several things: more public investment from governments around the world, more policies that support consumer choice and meat-related terms for plant-based foods, more open-access ingredient and formulation data, and more major companies leaning in on flavor-forward, familiar favorites made without animal products.

Multiple interventions will be needed to transform food systems at the pace and scale needed to feed a growing world. As a nonprofit, GFI is committed to moving the entire sector forward. We are helping to build a path where delicious, affordable meat and seafood are made in ways that are far more sustainable, secure, healthy, and safe. With the right levels of support, plant-based meat—alongside cultivated and fermentation-derived meat—can be a core food system solution, helping us tackle the biggest challenges of our time.

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—working across Asia Pacific, Brazil, Europe, India, Israel, and the United States—advancing alternative proteins as an essential solution needed to meet the world's climate, global health, food security, and biodiversity goals.

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 climate and biodiversity, 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 fair and transparent regulatory frameworks for assessing safety and product labeling.

Engaging with industry to advance alternative proteins

We work to replicate past market transformations by showing companies of all sizes, from startups to multinationals, the benefits of protein diversification and how alternative proteins can enable businesses to succeed while meeting sustainability goals. 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.

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.

In 2026, GFI marks its 10th year. That's 10 years of impact—from a simple idea (can meat be made differently?) to a global and growing ecosystem of innovators making it happen. To learn more, check out our special 10th anniversary edition Year in Review, which marks how far the field has come and points to the important work ahead.