Agri-Food Biomanufacturing

Market Briefing · July 2026

An independent read on the smart-protein market — India & Europe · Dr. Nitika Mukhi · agricortex.in

KEY TAKEAWAYS

01

Capital is rotating to fermentation.

Fermentation drew **$651M** of 2024's ~$1.1B alternative-protein investment — now ahead of plant-based and cultivated as the field tilts toward B2B ingredients.

`GFI · 2024 State of the Industry`

02

Two markets, two very different clocks.

Europe is large but maturing (**~$5.8B**, mid-single-digit growth); India is small but on a steep curve — smart protein **~$42M today to ~$4.2B by 2030**.

`GFI Europe / Circana · GFI India x Deloitte`

03

Localization is the decade's opportunity.

India still imports **~90%** of its alternative-protein inputs — the core case for domestic biomanufacturing, now backed by BioE3 and a $300B bioeconomy target.

`GFI India · DBT / BioE3`

04

The bottleneck isn't the molecule.

Whether via high-throughput screening or AI-led design, the binding constraints are **scale-up capacity, media cost and regulation** — not protein design.

`McKinsey · GFI`

MARKET SNAPSHOT

Metric	Figure	Source
Alternative-protein market	~$22B (2024) to ~$36B (2030); ~8–9% CAGR	R&M / Arizton; Grand View
2024 investment by sector	Fermentation $651M · Plant-based $309M · Cultivated $139M (total ~$1.1B, –29% YoY)	GFI 2024 SOI
Plant-based retail — Europe	~$5.8B (2023, 6 markets); +5.5%; Germany ~40%	GFI Europe / Circana
India — alternative protein	~$0.8B (2023, ~5% of global) to ~$1.5B (2030, ~9% CAGR)	Grand View
India — smart protein	~$42M to ~$4.2B by 2030	GFI India x Deloitte
Vertical / indoor farming	~$8B (2024); ~20% CAGR to mid-$20Bs by 2030	Grand View; Polaris; Mordor

INDIA vs EUROPE — SMART PROTEIN

EUROPE	INDIA
• **~$5.8B** plant-based food retail (2023, 6 markets); +5.5%, Germany ~40% • Mid-single-digit growth; maturing, nearing price parity in places • Deep science & strains (Formo, Those Vegan Cowboys); PF funding ~tripled to ~€120M (2024) • Brake: no major precision-fermented protein EU-approved as of early 2026 (EFSA lags US)	• **~$0.8B** alt-protein (2023); smart protein **~$42M to ~$4.2B by 2030** • ~9% CAGR; early on the curve; ~90% of inputs still imported • Policy tailwinds: BioE3, National Biofoundry Network, DBT/BIRAC; $300B bioeconomy by 2030 • Edge: low capex/opex, deep pharma-fermentation base, feedstock diversity

Directional comparison — Europe figures are plant-based food retail (GFI Europe/Circana); India figures are the alternative-protein market (Grand View) and smart-protein segment (GFI India x Deloitte). Definitions differ across sources.

THE TECHNOLOGY, IN BRIEF

High-throughput · experimental Directed evolution, automated library screening, microfluidic sorting, micro-bioreactors, Design-of-Experiments. Strength: works without full mechanistic insight — proven for enzymes and strains.	**AI-led · advanced** AlphaFold & de novo design (RFdiffusion, ProteinMPNN), protein language models, ML-guided evolution, metabolic modelling; continuous, food-grade bioprocessing. Strength: narrows the search and cuts wet-lab cycles.

The bottleneck: whichever route, the binding constraints are downstream — fermentation capacity, media and feedstock cost, energy and regulation. Meeting even a fraction of 2030 demand needs ~20x today's global pharma fermentation capacity (McKinsey).

Recent advances — Europe: Formo (€61M Series B + €35M EIB) and Those Vegan Cowboys industrialising animal-free casein; PF funding ~tripled in 2024. **India:** Phyx44, Zero Cow, StrainX, Perfect Day–Zydus on fermentation; Biokraft, Clear Meat, Neat Meatt on cultivated; National Biofoundry Network (2025).

What the future holds: convergence into AI-native, 'self-driving' biofoundries (India is building these); decisive levers shift to scale-up, cheaper media, modular bioreactors and regulatory speed. Europe leads on science and strains; India is racing on policy, manufacturing and cost — with parity targeted within the decade.

HOW THIS IS COMPILED

Agricortex synthesizes publicly available data from industry bodies (GFI, GFI India, GFI Europe), market-research firms, and government & regulatory sources (DBT/BioE3, EFSA), alongside company reporting. Figures are indicative, dated, and cited; definitions differ across sources, so cross-market comparisons are directional rather than like-for-like. Independent analysis only — no proprietary, client-confidential, or research IP.

Last reviewed: July 2026 · Prepared by Dr. Nitika Mukhi · agricortex.in · Sources: GFI · GFI India · GFI Europe · Circana · Grand View · Deloitte · McKinsey · DBT/BioE3 · EFSA