

Precision Fermentation Protein Platforms

ANMD-MRS13-126 · Sustainable Food & Alternative Protein Technologies

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

WHY THIS REPORT

Precision fermentation protein platforms brew specific proteins using engineered microbes — the yeast, fungal and bacterial host systems that produce dairy and egg proteins, heme, enzymes and functional proteins identical to their animal counterparts, without animals. By programming microorganisms as cell factories, the field promises animal-free dairy and functional proteins at industrial scale. This decision-grade study sizes the global market three ways — value, volume (tonnes/kg) and products/SKUs — across protein type, host system and channel, across seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability is this report's backbone, not an afterthought. Precision fermentation offers animal-identical proteins with potentially lower land, water and emissions footprint.

Mapped Sustainable Development Goals:

SDG 2 Zero Hunger	SDG 3 Good Health & Well-being	SDG 12 Responsible Consumption & Production	SDG 13 Climate Action	SDG 15 Life on Land
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Measurable sustainability outcomes assessed:

- Animal-free dairy, egg and functional proteins
- Potential land, water and emissions reduction vs animal agriculture
- Fermentation feedstock and energy footprint as a material risk
- LCA substantiation and novel-protein regulation assessed

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	9 Report Parts	7 Regions Covered	40+ Country Markets
2025–32 Forecast Horizon	4 Forward Scenarios	25+ Companies Profiled	5 SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. North America leads commercialisation; Europe and Israel drive dairy fermentation; ingredient majors enable scale; other regions assessed on their own merits.

- Animal-identical dairy, egg and functional proteins without animals
- Engineered yeast, fungal and bacterial host systems
- Heme and specialty proteins for plant-based meat and functionality
- Feedstock and energy footprint, LCA and regulation as material risks

MARKET OVERVIEW

From animal protein to microbial cell factory — where engineered strains brew animal-identical proteins without animals.

Precision fermentation is among the most investable alt-protein routes. Demand is driven by animal-free dairy and egg proteins, heme for plant-based meat, and functional and specialty proteins across North America, Europe and Israel. The market is read three ways — value, volume and products/SKUs — and forecast under four scenarios, each region reported separately.

- **North America leads commercialisation** — United States, anchored by Perfect Day, Inc., The EVERY Company, Impossible Foods Inc. (heme) and Motif FoodWorks, Inc.
- **Europe and Israel drive dairy fermentation** — Germany and Israel, with Formo Bio GmbH, Remilk Ltd., Imagindairy Ltd. and New Culture targeting animal-free dairy proteins
- **Fermentation cost is the differentiator** — titre, yield and downstream cost determine whether precision-fermentation proteins reach price parity
- **Host system segments the value** — yeast, fungal/filamentous and bacterial, each with distinct productivity and protein fit

REGIONAL OUTLOOK

Across seven reporting regions, the report separates leading markets from high-growth and emerging ones — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Country Markets & Drivers
North America	Commercialisation leader	United States — Perfect Day, EVERY, Impossible, Motif
Europe & Israel	Dairy-fermentation hub	Germany, Israel — Formo, Remilk, Imagindairy
Asia Pacific	Scaling	Australia, Singapore — fermentation capacity & demand
Middle East	Innovation hub	Israel — Remilk, Imagindairy precision fermentation
Latin America	Frontier	Brazil — early fermentation interest
Africa	Frontier	South Africa — research & early activity

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> • Animal-free dairy & egg demand • Heme & functional-protein applications • Identical-to-animal functionality • Strain-engineering & titre gains • Sustainability & supply-resilience case 	<ul style="list-style-type: none"> • Fermentation cost & downstream yield • Bioreactor capacity & capex • Regulatory approval (novel proteins) • Host-strain productivity limits • Consumer understanding & acceptance

SEGMENTATION SNAPSHOT

By Protein Type	Dairy-protein fermentation · egg-protein fermentation · heme & functional proteins · enzyme & specialty proteins · host-strain & bioprocess
By Host System	Yeast · fungi / filamentous · bacteria
By Stage	Approved · pilot · pre-commercial
By End User	Food brands · manufacturers · retail · foodservice
By Business Model	Branded products · ingredient supply · licensing
By Channel	Retail / CPG · foodservice · ingredient / B2B

TECHNOLOGY & APPLICATION FINDINGS

Where the category is differentiating fastest — the technology and application fronts that separate leaders from followers:

- **Dairy & egg proteins** — fermentation produces casein, whey and egg proteins identical to animal versions
- **Heme & functional** — specialty proteins like heme deliver flavour and function to other alt-proteins
- **Host & bioprocess** — strain engineering and scaled fermentation set the cost and capacity ceiling

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

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- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

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COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans precision-fermentation pioneers and ingredient enablers. Deal activity — capacity partnerships, ingredient-supply deals and dairy-protein launches — signals a market consolidating around cost-competitive, scaled fermentation platforms.

Representative players profiled in the full report:

Perfect Day, Inc. · The EVERY Company · Impossible Foods Inc. (heme) · Motif FoodWorks, Inc. · Novonesis A/S · dsm-firmenich AG · Remilk Ltd. · and 20+ further profiled players.

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a conditional investment view.

KEY QUESTIONS THIS REPORT ANSWERS

- How large is the global precision fermentation protein market, and how fast will it grow to 2032?
- Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- Which technologies and sources reshape the addressable market and the cost curve?
- Who leads, and where is the competitive and patent white space?
- Is the investment case bankable — and under what conditions?
- How does the category align with the SDGs, nutrition, food security and disclosure regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, nutrition, climate, water and natural-capital intelligence and a decision-ready bankability view in a single architecture.

- **Triangulated sizing** — every market read three ways so value, volume (tonnes/kg) and the products/SKUs view reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, conditional investment view.

WHO SHOULD BUY THIS REPORT

Food brands, manufacturers, ingredient suppliers, retailers, foodservice, investors and policymakers, and strategic corporate planners and decision-makers.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at www.anewmarketdynamics.com · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at www.anewmarketdynamics.com. The full detailed table of contents will be sent directly to your registered company email address.