

Algae-Derived Food Proteins

ANMD-MRS13-129 · 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

Algae-derived food proteins harness micro- and macroalgae as nutrient-dense, low-footprint protein sources — the spirulina, chlorella, microalgae isolates and seaweed proteins that supply complete protein, omega-3s and functional ingredients. Grown in ponds, photobioreactors or via heterotrophic fermentation, algae offer protein production without arable land or fresh water. This decision-grade study sizes the global market three ways — value, volume (tonnes/kg) and products/SKUs — across algae type, cultivation 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. Algae protein needs no arable land or fresh water, can use waste CO2 and nutrients, and delivers dense nutrition.

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:

- Protein production without arable land or fresh water
- Waste-CO2 and nutrient valorisation through cultivation
- Cultivation energy footprint as a material risk
- LCA substantiation and novel-food 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 and Japan lead established supply; Europe drives microalgae and fermentation; Israel and emerging hubs add innovation; other regions assessed on their own merits.

- Nutrient-dense protein without arable land or fresh water
- Spirulina, chlorella, microalgae isolates and seaweed proteins
- Open-pond, photobioreactor and heterotrophic-fermentation routes
- Cultivation energy, LCA and novel-food regulation as material risks

MARKET OVERVIEW

From niche supplement to mainstream protein — where land- and water-free algae deliver dense, functional nutrition.

Algae protein is a nutrient-dense, niche-to-scaling segment. Demand is driven by nutrition (complete protein, omega-3, micronutrients), low-footprint cultivation, and functional-ingredient applications across North America, Europe and Asia Pacific. The market is read three ways — value, volume and products/SKUs — and forecast under four scenarios, each region reported separately.

- **North America and Japan lead established supply** — United States and Japan, anchored by Cyanotech Corporation, DIC Corporation (Earthrise) and Triton across spirulina and microalgae
- **Europe drives microalgae and fermentation** — France, the Netherlands and Portugal, with Corbion N.V., Roquette Frères (Algae), dsm-firmenich AG and Allmicroalgae
- **Cultivation cost and sensory are the differentiator** — reducing cost and overcoming taste/colour limits gate algae protein's move into mainstream food
- **Cultivation system segments the value** — open ponds, photobioreactors and heterotrophic fermentation, each with distinct cost and quality

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 & Japan	Established supply	United States, Japan — Cyanotech, DIC (Earthrise), Triton
Europe	Microalgae & fermentation	France, Netherlands, Portugal — Corbion, Roquette, Allmicroalgae
Asia Pacific	Scaling	Singapore, China — Sophie's BioNutrients, cultivation
Middle East	Innovation hub	Israel — Algatechnologies, Brevel
Latin America	Emerging	Brazil — algae cultivation
Africa	Frontier	South Africa — spirulina & nutrition

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
• Nutrient-density & omega-3 demand • Land- and freshwater-free cultivation • Functional-ingredient applications • Sustainability & blue-economy appeal • Waste-CO2 valorisation potential	• Cultivation cost & scale-up • Taste, colour & sensory limits • Novel-food regulatory pathways • Energy footprint of cultivation • Consumer acceptance & familiarity

SEGMENTATION SNAPSHOT

By Algae Type	Spirulina proteins · chlorella proteins · microalgae protein isolates · macroalgae (seaweed) proteins · algae-based functional ingredients
By Cultivation System	Open ponds · photobioreactors · fermentation (heterotrophic)
By Application	Nutrition · functional ingredients · colour / omega-3
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:

- **Spirulina & chlorella** — established microalgae supply complete protein and micronutrients
- **Microalgae isolates** — de-flavoured, de-coloured protein isolates broaden food applications
- **Heterotrophic fermentation** — controlled fermentation scales consistent, food-grade algae protein

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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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COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans established algae producers and ingredient majors. Deal activity — cultivation-capacity investment, fermentation partnerships and functional-ingredient launches — signals a market scaling around cost-competitive, food-grade algae protein.

Representative players profiled in the full report:

Corbion N.V. · DIC Corporation (Earthrise) · Cyanotech Corporation · Roquette Frères (Algae) · dsm-firmenich AG · Algatechnologies Ltd. · Cargill, Incorporated · 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 algae-derived food 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.