

Agricultural Enzymes Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031)

> **Industry:** Biologicals, Biopesticides & Crop Protection (Agriculture & Agri business)
> **Source:** <https://www.mordorintelligence.com/industry-reports/agricultural-enzymes-market>
> **Scraped Date:** 2026-09-17

Executive Market Summary

Market Metric	Details
Base Market Size	USD 648.72 million
Projected Forecast (2031)	USD 648.72 million
Growth Rate (CAGR)	8.12 %
Largest Market Region	N/A
Fastest-Growing Region	N/A

Market Visualizations & Infographics

! [Major players in Agricultural Enzymes industry](images/chart_2.png)

! [Agricultural Enzymes Market Size](images/chart_3.png)

! [Agricultural Enzymes Market Share by Enzyme Type, 2025](images/chart_4.png)

! [Agricultural Enzymes Market Share by Mode of Application, 2025](images/chart_5.png)

! [Wild Pollock Market CAGR (%), Growth Rate by Region](images/chart_6.png)

! [Agricultural Enzymes Market Concentration](images/chart_7.png)

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Comprehensive Research Analysis

Overview Points List Flex 49 Share Feature End

Market OverviewStudy Period | 2021 - 2031 |
Market Size (2026) | USD 648.72 Million |
Market Size (2031) | USD 958.15 Million |
Growth Rate (2026 - 2031) | 8.12 % |
Fastest Growing Market | Asia Pacific |
Largest Market | North America |
Market Concentration | Medium |
Major Players*Disclaimer: Major Players sorted in no particular order

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Market Overview

Agricultural Enzymes Market Analysis by Mordor Intelligence
The Agricultural Enzymes Market size was valued at USD 600 million in 2025 and estimated to grow from USD 648.72 million in 2026 to reach USD 958.15 million by 2031, at a CAGR of 8.12% during the forecast period (2026-2031). This growth reflects the tightening of regulations on synthetic chemicals, a greater consumer appetite for residue-free food, and steady advances in enzyme formulation and delivery technologies. Commercial growers in mature markets are replacing a share of conventional inputs with enzyme-based biologicals, while smallholders in Asia-Pacific are moving toward yield-boosting biologicals supported by targeted subsidy programs. Parallel advances in precision fermentation and AI-driven protein design are reducing product-development cycles, while long-term carbon-credit programs are generating new revenue streams for farmers who deploy regenerative enzyme solutions. Competitive intensity is rising as agrochemical majors strengthen biological portfolios through partnerships and acquisitions, and specialized biotechnology firms race to commercialize next-generation multi-enzyme cocktails.

Key Report Takeaways* By enzyme type, phosphatases led with 36.42% agricultural enzymes market share in 2025, while cellulases are forecast to advance at a 13.05% CAGR to 2031.

* By formulation, liquid products accounted for 45.55% of the agricultural enzymes market size in 2025; granular formats are projected to grow at 11.72% CAGR through 2031.

* By application, fertility enhancement commanded 40.35% of the agricultural enzymes market size in 2025, whereas crop protection is set to expand at an 11.32% CAGR between 2026-2031.

* By mode of application, soil treatments held 43.86% agricultural enzymes market share in 2025, while seed treatments are anticipated to post a 10.24% CAGR to 2031.

* By crop type, cereals and grains secured 39.15% of the agricultural enzymes market size in 2025; fruits and vegetables represent the fastest-growing crop segment at a 10.18% CAGR.

* By geography, North America dominated with roughly 34.62% agricultural enzymes market share in 2025, whereas Asia-Pacific is projected to register a 9.56% CAGR through 2031.

Key Market Trends

Market Trends and Insights
Drivers Impact Analysis of Agricultural Enzymes Market

*Driver | (~) % Impact on CAGR Forecast | Geographic Relevance | Impact Timeline

| Organic and residue-free food demand | +1.8% | Global, concentrated in North America and EU | Medium term (2-4 years) |

| Biological input adoption surge | +2.1% | Global, led by Asia-Pacific and Brazil | Short term (≤ 2 years) |

| Intensified Research and Development, and product innovation | +1.4% | North America and EU core, spill-over to Asia-Pacific | Long term (≥ 4 years) |

| Seed-coating micro-dose delivery | +0.9% | North America and Brazil, expanding to Asia-Pacific | Medium term (2-4 years) |

| Regenerative-ag carbon-credit programs | +1.2% | North America and EU, pilot programs in Asia-Pacific | Long term (≥ 4 years) |

| On-farm enzyme fermentation units | +0.6% | Developed markets initially, scaling to emerging regions | Long term (≥ 4 years) |

Source: Mordor Intelligence |

Competitive Landscape

Competitive Landscape

The agricultural enzymes market maintains moderate fragmentation, with increasing consolidation as major agrochemical companies pursue biological growth opportunities. Novogenesis Group, Elemental Enzymes, and Infinita Biotech Pvt. Ltd. are the major companies that are partnering with Chemical companies to expand their products. In May 2025, UPL established an exclusive agreement with Elemental Enzymes for the Brazilian market, with plans to replicate this model globally by 2027.

Technology development remains a key competitive factor. Arzeda's USD 38 million funding in 2024 supports AI-enabled protein design to develop enzyme variants with enhanced field stress resistance. AgroSpheres secured USD 37 million for developing nanocarrier technology that improves enzyme stability on leaf surfaces. Marrone Bio Innovations' patent applications demonstrate specific progress, with their water-dispersible granules showing 15% higher field efficacy than liquid formulations in high-humidity conditions.

The market presents growth potential in crop-specific enzyme solutions and localized production methods. Companies are testing containerized fermentation systems for on-site enzyme blend production, reducing transportation costs and enabling customization based on soil analysis. Market success depends on demonstrating scientific validity and providing a clear return on investment evidence that meets farmer requirements.

Agricultural Enzymes Industry Leaders* Elemental Enzymes

- * Infinita Biotech Pvt. Ltd

- * Enzyme Solutions Inc.

- * Bioworks Inc.

- * Novogenesis Group

- * *Disclaimer: Major Players sorted in no particular order

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Scope Methodology P Space

For this study, the agricultural enzymes market covers enzymes sold for use in crop production to improve nutrient availability, plant growth, and crop protection through soil, seed, or foliar application.

Scope exclusions: It does not count enzymes used only in livestock feed, industrial processing, or biofuel manufacturing.

Segmentation Container

- * By Enzyme Type* Phosphatases

- * Dehydrogenases

- * Ureases

- * Proteases

- * Lyases

- * Cellulases

- * Other Enzyme Types

- * By Formulation* Liquid

- * Powder

- * Granular

- * By Application* Crop Protection
- * Fertility Enhancement
- * Plant Growth Regulation
- * By Mode of Application* Seed Treatment
- * Foliar Spray
- * Soil Treatment
- * By Crop Type* Cereals and Grains
- * Oilseeds and Pulses
- * Fruits and Vegetables
- * Turf and Ornamentals
- * Other Crops
- * By Geography* North America* United States
- * Canada
- * Mexico
- * Rest of North America
- * Europe* Germany
- * United Kingdom
- * France
- * Italy
- * Spain
- * Russia
- * Rest of Europe
- * Asia-Pacific* China
- * Japan
- * India
- * Australia
- * Rest of Asia-Pacific
- * South America* Brazil
- * Argentina
- * Rest of South America
- * Middle East* Saudi Arabia
- * United Arab Emirates
- * Turkey
- * Rest of Middle East
- * Africa* South Africa
- * Kenya
- * Rest of Africa

Frequently Asked Questions

What is the current size of the agricultural enzymes market?

The agricultural enzymes market stands at USD 648.72 million in 2026 and is forecast to reach USD 958.15 million by 2031, implying an 8.12% CAGR.

Which enzyme type holds the largest share today?

Phosphatases lead with 36.42% agricultural enzymes market share in 2025, owing to their pivotal role in unlocking soil phosphorus for crops.

Which region is growing the fastest?

Asia-Pacific is the fastest-growing region, projected to post a 9.56% CAGR through 2031, propelled by smallholder adoption programs and supportive government su

bsidies.

How are enzymes used in crop protection?

Enzyme-based bio fungicides and seed treatments deliver novel modes of action that complement microbial biocontrols, driving an 11.32% CAGR for the crop-protection application segment through 2031.