

Biological Pest Control Market Forecasts to 2034 – Global Analysis By Product Category (Macrobiological Control Agents, Microbial Biological Control Agents, Biochemical Agents, and Other Biological Control Agents), Target Pest, Crop Type, Formulation, Application Method, Mode of Deployment, Distribution Channel, End User, and By Geography

<https://marketpublishers.com/r/B3B2559170A9EN.html>

Date: March 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: B3B2559170A9EN

Abstracts

According to Statistics MRC, the Global Biological Pest Control Market is accounted for \$7.9 billion in 2026 and is expected to reach \$22.6 billion by 2034 growing at a CAGR of 14% during the forecast period. Biological pest control utilizes natural predators, parasites, and pathogens to manage agricultural pests while minimizing environmental impact. These eco-friendly solutions offer sustainable alternatives to chemical pesticides, addressing consumer demand for residue-free food and regulatory pressure for reduced chemical inputs. The market encompasses macrobiologicals, microbials, and biochemicals deployed across diverse agricultural settings, supporting integrated pest management strategies worldwide.

Market Dynamics:

Driver:

Stringent regulations on chemical pesticide use

Governments globally are implementing increasingly strict restrictions on synthetic

pesticide applications to protect human health and environmental quality. The European Union's Farm to Fork strategy aims to reduce chemical pesticide use by 50% by 2030, while other regions follow with similar regulatory frameworks. These mandates force farmers to seek alternative pest management solutions, with biological controls representing the most viable substitute. Regulatory phase-outs of conventional products create market gaps that biological alternatives must fill, driving adoption across conventional and organic farming operations seeking compliance with evolving legal requirements.

Restraint:

Shorter shelf life and stability issues

Biological control agents contain living organisms or sensitive biochemical compounds that require specific storage conditions and have limited viability periods compared to synthetic chemicals. Temperature sensitivity during transportation and storage can degrade product efficacy before application, creating supply chain challenges in regions with inadequate cold chain infrastructure. Farmers accustomed to chemical pesticides' extended shelf lives must adjust procurement and inventory practices. These stability limitations increase distribution costs and product waste, potentially reducing grower confidence in biological solutions despite their environmental benefits.

Opportunity:

Integration with precision agriculture technologies

Advancing digital farming tools create unprecedented opportunities for biological pest control optimization through targeted application strategies. Drone technology, variable rate applicators, and sensor networks enable precise deployment of beneficial organisms exactly where and when needed, maximizing efficacy while minimizing waste. Data analytics platforms help farmers predict pest pressure and time biological interventions for optimal results. This technological convergence addresses historical performance variability concerns, making biological controls more reliable and attractive to conventional growers seeking to maintain productivity while reducing chemical inputs.

Threat:

Variable efficacy under field conditions

Biological control agents remain living organisms whose performance depends heavily on environmental conditions outside manufacturer control. Temperature extremes, humidity fluctuations, and UV exposure can significantly reduce viability and activity levels after application, leading to inconsistent pest suppression results. Farmers facing crop-threatening infestations may revert to chemical alternatives when biologicals underperform, undermining adoption momentum. This inherent variability creates perception challenges, with some growers viewing biologicals as less reliable than synthetics despite their environmental advantages, potentially limiting market penetration.

Covid-19 Impact:

The COVID-19 pandemic highlighted food system vulnerabilities while accelerating interest in sustainable agriculture. Supply chain disruptions affecting chemical pesticide imports prompted farmers to explore locally available biological alternatives. Labor shortages during lockdowns increased interest in preventive biological strategies requiring fewer applications. Consumer focus on health and food safety intensified during the crisis, strengthening demand for residue-free produce. These pandemic-driven shifts toward resilient, sustainable food systems created lasting momentum for biological pest control adoption across global agricultural markets.

The Foliar Spray segment is expected to be the largest during the forecast period

The Foliar Spray segment is expected to account for the largest market share during the forecast period, reflecting its compatibility with existing farming equipment and grower familiarity with spray applications. Farmers can deploy biological foliar products using standard sprayers without additional equipment investment, reducing adoption barriers. This method provides immediate coverage against above-ground pests affecting leaves, stems, and fruits across diverse crops. The versatility and ease of integration into established farming practices ensure foliar spraying remains the dominant application approach throughout the forecast timeline.

The Integrated Pest Management Programs segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the Integrated Pest Management Programs segment is predicted to witness the highest growth rate, driven by agricultural sustainability initiatives and regulatory preference for holistic approaches. IPM combines biological controls with cultural practices, monitoring, and selective chemical use only when

thresholds are exceeded. Government extension services and agricultural advisors increasingly promote IPM adoption to reduce overall pesticide loads while maintaining productivity. Food retailers and processors also favor IPM-certified produce, creating market incentives for comprehensive program adoption beyond individual biological product purchases.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, supported by advanced agricultural research infrastructure and strong organic farming sector growth. Large-scale conventional farms increasingly integrate biological controls into production systems, driven by consumer demand for sustainable food and retailer sustainability commitments. Well-established distribution networks and technical advisory services support farmer adoption. Regulatory pressure on chemical pesticides, particularly in California and other major agricultural states, accelerates biological product registration and commercial availability throughout the region.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, driven by rapid agricultural modernization and government initiatives promoting sustainable farming practices. Countries including China, India, and Vietnam are reducing chemical pesticide dependence through policy incentives and farmer education programs. Expanding middle-class populations demand residue-free food, creating market pull for biologically produced crops. Large agricultural economies with smallholder farmer bases present significant growth opportunities as biological products become more accessible through cooperative networks and government distribution channels.

Key players in the market

Some of the key players in Biological Pest Control Market include Koppert Biological Systems, Biobest Group NV, Andermatt Group AG, Valent BioSciences LLC, BASF SE, Syngenta AG, Bayer AG, FMC Corporation, Certis USA LLC, Bioline AgroSciences Ltd, Russell IPM Ltd, Isagro SpA, Novozymes AS, Sumitomo Chemical Co Ltd, and Marrone Bio Innovations Inc.

Key Developments:

In January 2026, Koppert and Certhon announced the construction of a groundbreaking, high-tech moth breeding facility to automate and scale the production of beneficial insects.

In January 2026, Agricultural Solutions entered a definitive agreement to acquire AgBiTech Group, a specialist in biological insect control (baculoviruses). The deal, expected to close in H1 2026, focuses on scaling biological solutions in Brazil and the U.S.

In September 2025, Marrone Bio Innovations (Pro Farm Group) introduced the RINOTec™ Technology platform, a novel naturally-derived system for the management of insects, mites, and nematodes across high-value specialty crops..

Product Categories Covered:

Macrobial Biological Control Agents

Microbial Biological Control Agents

Biochemical Agents

Other Biological Control Agents

Target Pests Covered:

Insects

Mites

Nematodes

Plant Pathogens

Weeds

Other Pests

Crops Types Covered:

Fruits & Vegetables

Cereals & Grains

Oilseeds & Pulses

Plantation Crops

Ornamental Crops

Turf & Landscape Crops

Other Crops

Formulations Covered:

Liquid Formulations

Dry Formulations

Granular Formulations

Powder Formulations

Applications Covered:

Foliar Spray

Soil Application

Seed Treatment

Trunk Injection

Aerial Application

Mist / Fogging

Other Application Methods

Mode of Deployments Covered:

Preventive Biological Control

Curative Biological Control

Integrated Pest Management Programs

Distribution Channels Covered:

Agricultural Input Distributors

Direct Sales

Retail Agro-Dealers

Online Sales Platforms

Cooperatives & Farmer Organizations

Government Procurement / Subsidy Programs

End Users Covered:

Commercial Agriculture

Greenhouse Farming

Organic Farming

Horticulture & Specialty Crops

Landscaping & Turf Management

Research Institutes & Agricultural Universities

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

Biological Pest Control Market Forecasts to 2034 – Global Analysis By Product Category (Macrobial Biological C...

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY PRODUCT CATEGORY

- 5.1 Macrobial Biological Control Agents
 - 5.1.1 Predators
 - 5.1.2 Parasitoids
 - 5.1.3 Entomopathogenic Nematodes
- 5.2 Microbial Biological Control Agents
 - 5.2.1 Bacterial Agents
 - 5.2.2 Fungal Agents
 - 5.2.3 Viral Agents
 - 5.2.4 Protozoan Agents
- 5.3 Biochemical Agents
 - 5.3.1 Semiochemicals (Pheromones & Attractants)
 - 5.3.2 Plant Extracts & Natural Substances
- 5.4 Other Biological Control Agents

6 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY TARGET PEST

- 6.1 Insects
- 6.2 Mites
- 6.3 Nematodes
- 6.4 Plant Pathogens
- 6.5 Weeds
- 6.6 Other Pests

7 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY CROP TYPE

- 7.1 Fruits & Vegetables
- 7.2 Cereals & Grains
- 7.3 Oilseeds & Pulses
- 7.4 Plantation Crops
- 7.5 Ornamental Crops
- 7.6 Turf & Landscape Crops
- 7.7 Other Crops

8 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY FORMULATION

- 8.1 Liquid Formulations
- 8.2 Dry Formulations
- 8.3 Granular Formulations
- 8.4 Powder Formulations

9 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY APPLICATION METHOD

- 9.1 Foliar Spray
- 9.2 Soil Application
- 9.3 Seed Treatment
- 9.4 Trunk Injection
- 9.5 Aerial Application
- 9.6 Mist / Fogging
- 9.7 Other Application Methods

10 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY MODE OF DEPLOYMENT

- 10.1 Preventive Biological Control
- 10.2 Curative Biological Control
- 10.3 Integrated Pest Management Programs

11 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY DISTRIBUTION CHANNEL

- 11.1 Agricultural Input Distributors
- 11.2 Direct Sales
- 11.3 Retail Agro-Dealers
- 11.4 Online Sales Platforms
- 11.5 Cooperatives & Farmer Organizations
- 11.6 Government Procurement / Subsidy Programs

12 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY END USER

- 12.1 Commercial Agriculture
- 12.2 Greenhouse Farming
- 12.3 Organic Farming
- 12.4 Horticulture & Specialty Crops

12.5 Landscaping & Turf Management

12.6 Research Institutes & Agricultural Universities

13 GLOBAL BIOLOGICAL PEST CONTROL MARKET, BY GEOGRAPHY

13.1 North America

13.1.1 United States

13.1.2 Canada

13.1.3 Mexico

13.2 Europe

13.2.1 United Kingdom

13.2.2 Germany

13.2.3 France

13.2.4 Italy

13.2.5 Spain

13.2.6 Netherlands

13.2.7 Belgium

13.2.8 Sweden

13.2.9 Switzerland

13.2.10 Poland

13.2.11 Rest of Europe

13.3 Asia Pacific

13.3.1 China

13.3.2 Japan

13.3.3 India

13.3.4 South Korea

13.3.5 Australia

13.3.6 Indonesia

13.3.7 Thailand

13.3.8 Malaysia

13.3.9 Singapore

13.3.10 Vietnam

13.3.11 Rest of Asia Pacific

13.4 South America

13.4.1 Brazil

13.4.2 Argentina

13.4.3 Colombia

13.4.4 Chile

13.4.5 Peru

- 13.4.6 Rest of South America
- 13.5 Rest of the World (RoW)
 - 13.5.1 Middle East
 - 13.5.1.1 Saudi Arabia
 - 13.5.1.2 United Arab Emirates
 - 13.5.1.3 Qatar
 - 13.5.1.4 Israel
 - 13.5.1.5 Rest of Middle East
 - 13.5.2 Africa
 - 13.5.2.1 South Africa
 - 13.5.2.2 Egypt
 - 13.5.2.3 Morocco
 - 13.5.2.4 Rest of Africa

14 STRATEGIC MARKET INTELLIGENCE

- 14.1 Industry Value Network and Supply Chain Assessment
- 14.2 White-Space and Opportunity Mapping
- 14.3 Product Evolution and Market Life Cycle Analysis
- 14.4 Channel, Distributor, and Go-to-Market Assessment

15 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 15.1 Mergers and Acquisitions
- 15.2 Partnerships, Alliances, and Joint Ventures
- 15.3 New Product Launches and Certifications
- 15.4 Capacity Expansion and Investments
- 15.5 Other Strategic Initiatives

16 COMPANY PROFILES

- 16.1 Koppert Biological Systems
- 16.2 Biobest Group NV
- 16.3 Andermatt Group AG
- 16.4 Valent BioSciences LLC
- 16.5 BASF SE
- 16.6 Syngenta AG
- 16.7 Bayer AG
- 16.8 FMC Corporation

- 16.9 Certis USA LLC
- 16.10 Bioline AgroSciences Ltd
- 16.11 Russell IPM Ltd
- 16.12 Isagro SpA
- 16.13 Novozymes AS
- 16.14 Sumitomo Chemical Co Ltd
- 16.15 Marrone Bio Innovations Inc

List Of Tables

LIST OF TABLES

Table 1 Global Biological Pest Control Market Outlook, By Region (2023–2034) (\$MN)

Table 2 Global Biological Pest Control Market Outlook, By Product Category (2023–2034) (\$MN)

Table 3 Global Biological Pest Control Market Outlook, By Macrobiological Control Agents (2023–2034) (\$MN)

Table 4 Global Biological Pest Control Market Outlook, By Predators (2023–2034) (\$MN)

Table 5 Global Biological Pest Control Market Outlook, By Parasitoids (2023–2034) (\$MN)

Table 6 Global Biological Pest Control Market Outlook, By Entomopathogenic Nematodes (2023–2034) (\$MN)

Table 7 Global Biological Pest Control Market Outlook, By Microbiological Control Agents (2023–2034) (\$MN)

Table 8 Global Biological Pest Control Market Outlook, By Bacterial Agents (2023–2034) (\$MN)

Table 9 Global Biological Pest Control Market Outlook, By Fungal Agents (2023–2034) (\$MN)

Table 10 Global Biological Pest Control Market Outlook, By Viral Agents (2023–2034) (\$MN)

Table 11 Global Biological Pest Control Market Outlook, By Protozoan Agents (2023–2034) (\$MN)

Table 12 Global Biological Pest Control Market Outlook, By Biochemical Agents (2023–2034) (\$MN)

Table 13 Global Biological Pest Control Market Outlook, By Semiochemicals (Pheromones & Attractants) (2023–2034) (\$MN)

Table 14 Global Biological Pest Control Market Outlook, By Plant Extracts & Natural Substances (2023–2034) (\$MN)

Table 15 Global Biological Pest Control Market Outlook, By Other Biological Control Agents (2023–2034) (\$MN)

Table 16 Global Biological Pest Control Market Outlook, By Target Pest (2023–2034) (\$MN)

Table 17 Global Biological Pest Control Market Outlook, By Insects (2023–2034) (\$MN)

Table 18 Global Biological Pest Control Market Outlook, By Mites (2023–2034) (\$MN)

Table 19 Global Biological Pest Control Market Outlook, By Nematodes (2023–2034) (\$MN)

Table 20 Global Biological Pest Control Market Outlook, By Plant Pathogens (2023–2034) (\$MN)

Table 21 Global Biological Pest Control Market Outlook, By Weeds (2023–2034) (\$MN)

Table 22 Global Biological Pest Control Market Outlook, By Other Pests (2023–2034) (\$MN)

Table 23 Global Biological Pest Control Market Outlook, By Crop Type (2023–2034) (\$MN)

Table 24 Global Biological Pest Control Market Outlook, By Fruits & Vegetables (2023–2034) (\$MN)

Table 25 Global Biological Pest Control Market Outlook, By Cereals & Grains (2023–2034) (\$MN)

Table 26 Global Biological Pest Control Market Outlook, By Oilseeds & Pulses (2023–2034) (\$MN)

Table 27 Global Biological Pest Control Market Outlook, By Plantation Crops (2023–2034) (\$MN)

Table 28 Global Biological Pest Control Market Outlook, By Ornamental Crops (2023–2034) (\$MN)

Table 29 Global Biological Pest Control Market Outlook, By Turf & Landscape Crops (2023–2034) (\$MN)

Table 30 Global Biological Pest Control Market Outlook, By Other Crops (2023–2034) (\$MN)

Table 31 Global Biological Pest Control Market Outlook, By Formulation (2023–2034) (\$MN)

Table 32 Global Biological Pest Control Market Outlook, By Liquid Formulations (2023–2034) (\$MN)

Table 33 Global Biological Pest Control Market Outlook, By Dry Formulations (2023–2034) (\$MN)

Table 34 Global Biological Pest Control Market Outlook, By Granular Formulations (2023–2034) (\$MN)

Table 35 Global Biological Pest Control Market Outlook, By Powder Formulations (2023–2034) (\$MN)

Table 36 Global Biological Pest Control Market Outlook, By Application Method (2023–2034) (\$MN)

Table 37 Global Biological Pest Control Market Outlook, By Foliar Spray (2023–2034) (\$MN)

Table 38 Global Biological Pest Control Market Outlook, By Soil Application (2023–2034) (\$MN)

Table 39 Global Biological Pest Control Market Outlook, By Seed Treatment (2023–2034) (\$MN)

Table 40 Global Biological Pest Control Market Outlook, By Trunk Injection (2023–2034) (\$MN)

Table 41 Global Biological Pest Control Market Outlook, By Aerial Application (2023–2034) (\$MN)

Table 42 Global Biological Pest Control Market Outlook, By Mist / Fogging (2023–2034) (\$MN)

Table 43 Global Biological Pest Control Market Outlook, By Other Application Methods (2023–2034) (\$MN)

Table 44 Global Biological Pest Control Market Outlook, By Mode of Deployment (2023–2034) (\$MN)

Table 45 Global Biological Pest Control Market Outlook, By Preventive Biological Control (2023–2034) (\$MN)

Table 46 Global Biological Pest Control Market Outlook, By Curative Biological Control (2023–2034) (\$MN)

Table 47 Global Biological Pest Control Market Outlook, By Integrated Pest Management Programs (2023–2034) (\$MN)

Table 48 Global Biological Pest Control Market Outlook, By Distribution Channel (2023–2034) (\$MN)

Table 49 Global Biological Pest Control Market Outlook, By Agricultural Input Distributors (2023–2034) (\$MN)

Table 50 Global Biological Pest Control Market Outlook, By Direct Sales (2023–2034) (\$MN)

Table 51 Global Biological Pest Control Market Outlook, By Retail Agro-Dealers (2023–2034) (\$MN)

Table 52 Global Biological Pest Control Market Outlook, By Online Sales Platforms (2023–2034) (\$MN)

Table 53 Global Biological Pest Control Market Outlook, By Cooperatives & Farmer Organizations (2023–2034) (\$MN)

Table 54 Global Biological Pest Control Market Outlook, By Government Procurement / Subsidy Programs (2023–2034) (\$MN)

Table 55 Global Biological Pest Control Market Outlook, By End User (2023–2034) (\$MN)

Table 56 Global Biological Pest Control Market Outlook, By Commercial Agriculture (2023–2034) (\$MN)

Table 57 Global Biological Pest Control Market Outlook, By Greenhouse Farming (2023–2034) (\$MN)

Table 58 Global Biological Pest Control Market Outlook, By Organic Farming (2023–2034) (\$MN)

Table 59 Global Biological Pest Control Market Outlook, By Horticulture & Specialty

Crops (2023–2034) (\$MN)

Table 60 Global Biological Pest Control Market Outlook, By Landscaping & Turf Management (2023–2034) (\$MN)

Table 61 Global Biological Pest Control Market Outlook, By Research Institutes & Agricultural Universities (2023–2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

I would like to order

Product name: Biological Pest Control Market Forecasts to 2034 – Global Analysis By Product Category (Macrobial Biological Control Agents, Microbial Biological Control Agents, Biochemical Agents, and Other Biological Control Agents), Target Pest, Crop Type, Formulation, Application Method, Mode of Deployment, Distribution Channel, End User, and By Geography

Product link: <https://marketpublishers.com/r/B3B2559170A9EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/B3B2559170A9EN.html>