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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

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Abstracts

According to Stratistics 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 macrobials, 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

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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

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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

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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:

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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

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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

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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

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- 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

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- 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

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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

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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

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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.

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