

Biopesticides Market Forecasts to 2034 – Global Analysis By Product Type (Bioinsecticides, Biofungicides, Bioherbicides and Bionematicides), Crop Type, Source, Formulation, Application Mode and By Geography

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Abstracts

According to Statistics MRC, the Global Biopesticides Market is accounted for \$11.6 billion in 2026 and is expected to reach \$41.0 billion by 2034 growing at a CAGR of 17.1% during the forecast period. Biopesticides refer to environmentally friendly pest management solutions obtained from natural sources like microorganisms, botanical extracts, or certain minerals. They are gaining popularity in modern farming because they offer targeted action against pests while preserving beneficial organisms and minimizing harm to human health. These agents function by interfering with pest life cycles, limiting feeding, or releasing naturally occurring toxins. Unlike synthetic chemicals, they break down rapidly and leave fewer residues in soil and water. Growing awareness about sustainable practices, stricter regulations on chemical pesticides, and increasing demand for organic food are encouraging their widespread use across agricultural systems worldwide.

According to the FAO, global pesticide use in agriculture reached 3.73 million tonnes of active ingredients in 2023, doubling since 1990, which underscores the growing need for sustainable alternatives such as biopesticides. This trend highlights the urgency for biological solutions to reduce environmental and health risks while maintaining crop productivity.

Market Dynamics:

Driver:

Rising demand for organic food products

The rising inclination toward organic food consumption is significantly boosting the biopesticides market. Consumers are becoming more conscious of the harmful effects of chemical pesticides, leading to increased demand for naturally grown agricultural products. This trend encourages farmers to transition to safer pest control methods like biopesticides. Supportive policies, organic certifications, and clear labeling practices are further accelerating adoption. Moreover, supermarkets and food brands are actively promoting organic produce, motivating growers to meet these standards. Consequently, biopesticides are emerging as a preferred solution for sustainable farming, helping producers align with evolving consumer expectations and ensuring environmentally responsible agricultural practices globally.

Restraint:

Limited shelf life and storage challenges

The relatively short lifespan and strict storage requirements of biopesticides act as a major barrier to their adoption. Because these products are derived from biological sources, they are highly sensitive to environmental conditions such as heat, moisture, and sunlight. If not stored properly, their effectiveness can decline rapidly. This creates complications in handling, transportation, and distribution, especially in areas lacking proper storage systems. Farmers may struggle to preserve product quality for extended periods. Consequently, these limitations reduce confidence among users and slow the adoption of biopesticides, particularly in regions with underdeveloped infrastructure and limited access to advanced storage facilities.

Opportunity:

Integration with integrated pest management (IPM) practices

The growing use of Integrated Pest Management strategies is opening new avenues for the biopesticides market. IPM emphasizes a balanced approach to pest control by combining various techniques that are safe and sustainable. Biopesticides play a crucial role in this system because they effectively target pests without harming the environment. Farmers are increasingly adopting IPM to minimize chemical usage and meet regulatory requirements. Support from agricultural organizations and training programs is further encouraging this transition. Consequently, biopesticides are

becoming an integral part of advanced pest control practices, driving their demand and expanding their market potential.

Threat:

Strong competition from chemical pesticides

Biopesticides encounter significant rivalry from traditional chemical pesticides that dominate the agricultural market. Growers tend to rely on these products because they act quickly and provide consistent outcomes, particularly in urgent pest situations. Their widespread availability, lower cost, and established supply chains further strengthen their position. Farmers' long-term dependence on chemical solutions creates resistance to switching to biological alternatives. This strong competition poses a challenge for biopesticide adoption, especially in markets where affordability and immediate effectiveness are crucial. As a result, the growth potential of biopesticides may be restricted by the continued dominance of synthetic crop protection products.

Covid-19 Impact:

The outbreak of COVID-19 influenced the biopesticides market in both challenging and beneficial ways. Early in the pandemic, supply chain interruptions, workforce limitations, and logistical barriers disrupted manufacturing and distribution processes, reducing product accessibility. At the same time, heightened awareness regarding health, hygiene, and safe food consumption increased interest in eco-friendly agricultural inputs. Consumers and farmers began favoring organic produce, which supported the use of biopesticides. Additionally, government initiatives promoting sustainable farming contributed to market recovery. Although the industry faced temporary setbacks, the pandemic ultimately strengthened long-term demand and highlighted the importance of environmentally safe pest control solutions.

The bioinsecticides segment is expected to be the largest during the forecast period

The bioinsecticides segment is expected to account for the largest market share during the forecast period, primarily because of their broad application in managing harmful insect populations in agriculture. These products are widely preferred as insect pests are among the most damaging threats to crop productivity. Their precise action, environmental safety, and suitability for integrated pest control strategies strengthen their market position. Moreover, the growing resistance of pests to synthetic chemicals has accelerated the transition toward biological solutions. Increasing emphasis on

sustainable agriculture and environmentally safe practices continues to drive the adoption of bioinsecticides, reinforcing their dominant role in the global biopesticides industry.

The seed treatment segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the seed treatment segment is predicted to witness the highest growth rate owing to its efficiency and economic advantages. By applying biological agents directly onto seeds prior to sowing, it provides early protection against pests and diseases while enhancing seed performance. This approach reduces dependence on repeated field spraying and lowers environmental impact. Rising adoption of modern farming techniques and the need for improved productivity are driving its expansion. Furthermore, its compatibility with eco-friendly agriculture practices makes seed treatment an increasingly popular choice, significantly contributing to its strong growth trajectory in the global biopesticides industry.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, supported by its highly developed agricultural systems and strict environmental regulations. The region's growing organic farming industry and rising consumer preference for safe, chemical-free food are key demand drivers. Regulatory authorities encourage the use of biological alternatives while limiting hazardous pesticides. Furthermore, the presence of major companies, along with strong investment in innovation and research, enhances market expansion. Farmers in this region are highly aware of sustainable practices and readily adopt advanced technologies, making North America a dominant and influential region in the global biopesticides market.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest CAGR, owing to its expanding agricultural sector and rising food demand. With increasing population pressure, countries are focusing on improving crop productivity through sustainable methods. Governments are encouraging farmers to adopt biological alternatives to reduce dependence on chemical pesticides and enhance environmental protection. Growing awareness of eco-friendly farming practices among cultivators is also boosting adoption rates. Moreover, improvements in agricultural infrastructure and

the rise of export-driven farming activities are further accelerating market expansion, making Asia-Pacific the most rapidly growing region in the global biopesticides industry.

Key players in the market

Some of the key players in Biopesticides Market include Bayer CropScience, Syngenta, BASF, Corteva Agriscience, Marrone Bio Innovations, Certis USA, Koppert Biological Systems, Valent BioSciences, Isagro, Novozymes, Nufarm, Som Phytopharma India, Andermatt Biocontrol, BioWorks, AgriLife, Stockton Group, Seipasa and Parry America.

Key Developments:

In January 2026, Syngenta and SAP are joining forces with the aim of driving the adoption of Artificial Intelligence to transform the agricultural sector. To this end, the agricultural chemicals firm, which is headquartered in Basel, and the software developer from Walldorf in the German state of Hesse have agreed a multiyear partnership.

In December 2025, Corteva and Hexagon Bio announced a multi-million-dollar joint venture (JV) to accelerate the development of new crop protection solutions inspired by nature. The partnership brings together Corteva's billion-dollar nature-inspired crop protection franchises and bacterial natural product discovery capabilities with Hexagon Bio's natural-product discovery platform to advance the companies' respective pipelines across agriculture and human health.

In July 2025, Bayer signed a development and distribution agreement with French pheromones expert company M2i Group for the exclusive distribution of pheromone gels for the Asia-Pacific as well as the Latin America region and the United States building on its successful collaboration and related product launches in Europe and Africa.

Product Types Covered:

Bioinsecticides

Biofungicides

Bioherbicides

Bionematicides

Crop Types Covered:

Cereals & Grains

Fruits & Vegetables

Oilseeds & Pulses

Turf & Ornamentals

Sources Covered:

Microbial

Biochemical

Beneficial Insects

Formulations Covered:

Liquid

Dry

Application Modes Covered:

Foliar Spray

Seed Treatment

Soil Treatment

Post-Harvest

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:

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)

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