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# Bioinsecticides Market Forecasts to 2032 – Global Analysis By Source (Microbial, Botanical, Biochemical and Other Sources), Formulation (Dry and Liquid), Mode of Application (Foliar Spray, Soil Treatment, Seed Treatment and Post-Harvest), Crop Type, Target Pest, End User and By Geography

https://marketpublishers.com/r/B0296C04A3C0EN.html
Date: September 2025
Pages: 200
Price: US$ 4,150.00 (Single User License)
ID: B0296C04A3C0EN

## Abstracts

According to Stratistics MRC, the Global Bioinsecticides Market is accounted for $4.7 billion in 2025 and is expected to reach $13.6 billion by 2032 growing at a CAGR of 16.4% during the forecast period. Bioinsecticides are environmentally friendly insect-control products derived from natural organisms such as bacteria, fungi, viruses, or plant extracts. They target specific pests while minimizing harm to beneficial species, soil, and ecosystems. Their adoption is rising due to consumer demand for organic food, stricter pesticide regulations, and the push toward sustainable agriculture. Bioinsecticides are used across cereals, fruits, vegetables, and pulses. Ongoing research into microbial strains and advanced formulations is strengthening efficacy, expanding commercial adoption, and positioning bioinsecticides as a strong alternative to synthetic insecticides globally.

According to a legal review of U.S. regulation, by 2014 more than 430 biopesticide active ingredients and 1,320 products were registered by EPA, demonstrating a substantial base of bioinsecticide approvals.

Market Dynamics:

Driver:

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Rising demand for organic food production

The increasing consumer preference for organic food is a significant driver of the bioinsecticides market. As awareness grows regarding the health and environmental risks associated with conventional chemical pesticides, farmers are adopting organic farming practices. Bioinsecticides, derived from natural sources, offer effective pest control solutions that align with organic standards. This shift towards organic agriculture is supported by government policies promoting sustainable farming practices and reducing pesticide use, further fueling the demand for bioinsecticides.

Restraint:

Limited shelf life and storage challenges

Bioinsecticides often face limitations due to their relatively short shelf life and specific storage requirements. Unlike synthetic pesticides, which have longer shelf stability, bioinsecticides are susceptible to degradation over time, especially under unfavorable storage conditions. This necessitates careful handling and timely application, posing challenges for distribution and inventory management. Additionally, maintaining the efficacy of bioinsecticides during storage and transportation adds complexity to their commercial viability and widespread adoption.

Opportunity:

Growing demand in horticulture and specialty crops

The horticulture and specialty crop sectors present significant opportunities for bioinsecticides. These crops often require tailored pest management solutions due to their unique growth conditions and market value. Bioinsecticides offer a sustainable alternative to chemical pesticides, aligning with the increasing consumer demand for organic and residue-free produce. Their application in these sectors not only ensures effective pest control but also supports the growing trend towards sustainable agriculture practices, thereby expanding the market potential for bioinsecticides.

Threat:

Climate change impacting microbial efficacy

Climate change poses a threat to the efficacy of bioinsecticides, as fluctuations in

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temperature and humidity can affect the viability of the microorganisms used. Extreme weather conditions, such as prolonged droughts or excessive rainfall, can alter the habitat and survival rates of these beneficial microbes. This variability can lead to inconsistent pest control outcomes, challenging the reliability of bioinsecticides in diverse climatic conditions and potentially limiting their widespread adoption in affected regions.

Covid-19 Impact:

The COVID-19 pandemic had a mixed impact on the bioinsecticides market. While the initial disruption in the supply chain and reduced agricultural activities affected market growth, the pandemic also heightened consumer awareness of the importance of safe and sustainable food production. As a result, the market witnessed an increased demand for botanical pesticides as consumers focused on health and environmental sustainability. This shift in consumer behavior is expected to have a lasting positive effect on the bioinsecticides market in the post-pandemic era.

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

The liquid segment is expected to account for the largest market share during the forecast period. Liquid bioinsecticides offer advantages such as ease of application, uniform coverage, and compatibility with various spraying equipment. Additionally, they can be effectively used in both field and greenhouse applications, making them versatile for different agricultural settings. The convenience and efficiency associated with liquid formulations contribute to their dominance in the market.

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. Seed treatment involves applying bioinsecticides directly to seeds before planting, providing early protection against pests and diseases. This method ensures uniform distribution of the active ingredients and reduces the need for multiple pesticide applications during the growing season. The increasing adoption of integrated pest management practices and the focus on sustainable agriculture are driving the growth of the seed treatment segment.

Region with largest share:

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During the forecast period, the North America region is expected to hold the largest market share. The region's advanced agricultural infrastructure, stringent regulatory frameworks favoring sustainable practices, and high consumer demand for organic products contribute to this dominance. Moreover, government initiatives promoting the adoption of biopesticides and the presence of key market players further solidify North America's leading position in the global bioinsecticides market.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. Factors such as rapid agricultural development, increasing awareness of sustainable farming practices, and government support for eco-friendly pest control methods are driving this growth. Additionally, the large agricultural base and rising demand for organic produce in countries like India and China contribute to the expanding market opportunities for bioinsecticides in the Asia Pacific region.

Key players in the market

Some of the key players in Bioinsecticides Market include BASF SE, Bayer AG, Syngenta Crop Protection, Corteva Agriscience, Sumitomo Chemical Co., Ltd., FMC Corporation, Certis Biologicals, Valent BioSciences Corporation, Koppert Biological Systems, ProFarm Group, AgBiTech, BioWorks, Inc., Novozymes A/S, Andermatt Group, Biobest Group, Gowan Company, Isagro SpA, and Vestaron.

Key Developments:

In February 2025, BASF has started the registration for Prexio® Active, a new insecticide active ingredient designed specifically to manage all four rice hopper species. The regulatory dossiers were recently submitted in key Asia Pacific markets. This step marks an important milestone in further expanding BASF’s global insecticide portfolio and the company’s position in providing sustainable innovations to rice farmers in Asia.

In May 2024, FMC Corporation, a leading global agricultural sciences company, today announced a research agreement with AgroSpheres, a biotechnology company pioneering breakthroughs in sustainable crop protection and crop health. The agreement will accelerate the discovery and development of novel bioinsecticides, which is a key part of FMC's long-range strategic plan.

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In February 2024, Syngenta Crop Protection, a leader in agricultural innovation, and Lavie Bio Ltd., a subsidiary of Evogene Ltd., and a leading ag-biologicals company, today announced an agreement for the discovery and development of new biological insecticidal solutions. The collaboration will leverage Lavie Bio's unique technology platform to rapidly identify and optimize bio-insecticide candidates, as well as Syngenta’s extensive global research, development and commercialization capabilities.

Sources Covered:

- Microbial
- Botanical
- Biochemical
- Other Sources

Formulations:

- Dry
- Liquid

Mode of Applications Covered:

- Foliar Spray
- Soil Treatment
- Seed Treatment
- Post-Harvest

Crop Types Covered:

- Cereals & Grains

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- Fruits & Vegetables
- Oilseeds & Pulses
- Plantation Crops
- Other Crops

Target Pests Covered:

- Lepidoptera
- Coleoptera
- Hemiptera
- Diptera
- Other Target Pests

End Users Covered:

- Commercial Farmers
- Plantation Owners
- Greenhouse Operators
- Home Gardeners
- Institutional Users

Regions Covered:

- North America

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- US
- Canada
- Mexico

Europe

- Germany
- UK
- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
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- Rest of Asia Pacific

South America

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Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & 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 2024, 2025, 2026, 2028, and 2032
- 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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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 Middle East & Africa Regions are also represented in the same manner as above.

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