

Bioinsecticides Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028

Segmented By Source (Microbials, Plants, Others), By Application (Cereals & Grains, Oilseed and Pulses, Fruits and Vegetables, Others), By Region and Competition

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Abstracts

The Global Bioinsecticides Market was valued at USD 1337.81 million in 2022 and is expected to experience substantial growth during the forecast period, with a Compound Annual Growth Rate (CAGR) of 10.10% through 2028 and is expected to reach 2373.37 million by 2028 . Bioinsecticides harness the power of natural microorganisms such as bacteria, viruses, and fungi to effectively combat pest infestations in a precise and eco-friendly manner. Unlike chemical pesticides, which often pose risks to human health and the environment, bioinsecticides offer a greener and more targeted approach. These natural agents are carefully selected to specifically target pests while leaving beneficial insects and non-target organisms unharmed. This precision represents a significant departure from the indiscriminate nature of chemical pesticides, aligning with the principles of sustainable agriculture.

The effectiveness of bioinsecticides lies in their selectivity. While chemical pesticides can inadvertently harm non-target organisms, including pollinators like bees, bioinsecticides specifically target pests without affecting beneficial insects. This balanced approach preserves the delicate ecological relationships within ecosystems, ensuring the natural checks and balances that prevent pest outbreaks remain intact. By preserving biodiversity, bioinsecticides contribute to healthier agricultural landscapes and more resilient food systems.

Key Market Drivers

1. **Rising Demand for Bioinsecticides in Cereals & Grains Crops:** The agriculture sector is facing the challenge of feeding a growing population while mitigating the environmental impact of traditional farming practices. This has led to a surge in demand for sustainable pest management solutions, with a particular focus on bioinsecticides. Cereals and grains, such as rice, barley, corn, oats, wheat, and sorghum, are fundamental to global food security, and protecting these crops is essential. The increased consumption of these staples, coupled with the growing population, places pressure on farmers to ensure robust yields and protect crops from pests. Bioinsecticides provide effective pest management solutions while aligning with principles of sustainability. Additionally, government initiatives in many countries promote sustainable agriculture practices, including the use of bioinsecticides. The demand for cereals and grains is also driven by the food processing industry, where these grains are used extensively, primarily for animal feed.

2. **Increasing Demand for Organic Products:** Consumers are becoming more aware of the potential health risks associated with synthetic pesticides and chemical residues on conventionally grown crops. This awareness has led to a growing demand for organic and natural insecticides. Organic farming requires the use of natural or organic insecticides made from natural ingredients, which do not harm soil health and reduce environmental impact. Organic farming practices, including the use of bioinsecticides, help maintain soil health, control pests, weeds, and promote beneficial microorganisms. As a result, the demand for organic products has increased, and bioinsecticides play a crucial role in organic farming.

3. **Growing Demand for Microbial-based Bioinsecticides:** Microbial-based bioinsecticides, which utilize microorganisms like bacteria, viruses, and fungi, are gaining prominence. They offer targeted and eco-friendly pest control solutions. These bioinsecticides are effective against specific pests while sparing non-target organisms. Their dual efficacy, combining pest control with environmental preservation, aligns with consumer preferences for eco-friendly practices. As consumers worldwide seek environmentally friendly solutions, agriculture is no exception, contributing to the demand for microbial-based bioinsecticides.

Key Market Challenges

1. **Regulatory Hurdles and Complex Approvals:** Bioinsecticides face regulatory challenges due to their biological nature. They undergo rigorous evaluations for safety,

efficacy, and environmental impact. The diverse nature of microorganisms and their modes of action add complexity to the regulatory process. Companies must invest significant resources to meet stringent requirements, which can lead to delays in product development and market entry.

2. **Variable Efficacy and Consistency:** The efficacy of bioinsecticides can vary based on environmental conditions, target pests, and application methods. Achieving consistent efficacy requires a deep understanding of interactions between bioinsecticides, pests, and the environment. Advancements in formulation technologies are needed to enhance stability and performance under different conditions.

3. **Cost Competitiveness:** Bioinsecticides can be costlier to produce compared to chemical pesticides. This cost difference can pose a challenge for farmers, especially in regions with limited financial resources. Efforts are needed to optimize production processes and reduce manufacturing expenses, making bioinsecticides more economically viable for farmers.

Key Market Trends

1. **Rising Demand for Sustainable Pest Control Solutions:** The increasing demand for sustainable and eco-friendly pest control solutions is a driving force behind the growth of bioinsecticides. Consumers and farmers seek alternatives to traditional chemical insecticides due to concerns about their adverse effects on ecosystems and human health. Bioinsecticides, derived from natural sources, offer reduced environmental impact and minimal harm to beneficial insects, aligning with sustainability principles.

2. **Microbial Bioinsecticides Leading the Way:** Microbial-based bioinsecticides, including bacteria, viruses, and fungi, are gaining prominence in the market. These microorganisms are natural enemies of many pests and offer targeted solutions. *Bacillus thuringiensis* (Bt) and entomopathogenic fungi like *Beauveria bassiana* and *Metarhizium anisopliae* are examples of effective microbial bioinsecticides.

3. **Growing Investment in Biopesticide Production:** Established agrochemical companies and startups are investing in biopesticide production. The demand for bioinsecticides has led established players to expand their portfolios. Startups focus on innovative approaches to production, formulation, and delivery, resulting in more cost-effective and user-friendly products. Integration with advanced technologies like precision agriculture enhances efficiency and reduces environmental impact.

Segmental Insights

1. **Source Insights:** Microbial bioinsecticides, derived from living microorganisms such as bacteria, viruses, and fungi, dominate the bioinsecticides market. They offer a wider spectrum of targeted pests and higher efficacy. Examples include *Bacillus thuringiensis* (Bt) and entomopathogenic fungi. Microbial bioinsecticides provide effective pest control while sparing non-target organisms.
2. **Application Insights:** The application of bioinsecticides in cereals and grains crops is a significant driver of the market. Cereals and grains, including rice, barley, corn, oats, wheat, and sorghum, are essential staples, and protecting these crops is vital for global food security. The demand for bioinsecticides in cereals and grains arises from the need to ensure robust yields and protect these staple foods from pests.

Regional Insights

1. **North America:** North America leads the global bioinsecticides market due to the region's demand for sustainable and environmentally friendly pest management solutions. Numerous enterprises in North America are dedicated to research and manufacturing in the bioinsecticides sector. These entities consistently work on enhancing and developing new products for improved effectiveness and user-friendliness.
2. **Asia Pacific:** Asia Pacific plays a significant role in global agricultural commodities production and is projected to contribute a substantial share of global agricultural output. The region's expanding population and shrinking arable land have led to increased adoption of bioinsecticides to boost crop yields.

Key Market Players

BASF SE

Bayer Cropscience AG

Novozymes AS

Syngenta Crop Protection AG

Certis LLC

Corteva Agriscience

Valent Biosciences Corporation

Isagro Spa

UPL Limited

FMC Corporation

Report Scope:

In this report, the Global Bioinsecticides Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Bioinsecticides Market, By Source:

Microbials

Plants

Others

Bioinsecticides Market, By Application:

Cereals & Grains

Oilseed and Pulses

Fruits and Vegetables

Others

Bioinsecticides Market, By Region:

North America

United States

Canada

Mexico

Europe

France

Germany

United Kingdom

Italy

Spain

Asia-Pacific

China

India

South Korea

Japan

Australia

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Bioinsecticides Market.

Available Customizations:

Global Bioinsecticides Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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