

**Agricultural Biologicals Market Report by Type (Biopesticides, Biofertilizers, Biostimulants), Source (Microbials, Macrobials, Biochemicals, and Others), Mode of Application (Foliar Spray, Soil Treatment, Seed Treatment, Post-harvest), Application (Cereals and Grains, Oilseed and Pulses, Fruits and Vegetables, Turf and Ornamentals, and Others), and Region 2025-2033**

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**Report description:**

The global agricultural biologicals market size reached USD 16.1 Billion in 2024. Looking forward, IMARC Group expects the market to reach USD 46.9 Billion by 2033, exhibiting a growth rate (CAGR) of 12.6% during 2025-2033. The increasing demand for sustainable farming practices, along with the rising consumer awareness towards the harmful effects of chemical pesticides, is augmenting the market.

Agricultural biologicals are a category of agricultural inputs derived from natural sources, such as microorganisms, plants, and organic materials. They are used in farming to enhance crop growth, protect plants from pests and diseases, and improve overall agricultural sustainability. Unlike traditional chemical pesticides and fertilizers, agricultural biologicals harness the power of nature to promote healthier and more resilient crops. These biological products include biopesticides, which are used to control pests and diseases through non-toxic mechanisms, and bio stimulants, which enhance plant growth and development. In recent years, agricultural biologicals have gained prominence due to their environmentally friendly nature, lower chemical residue, and compatibility with organic farming practices.

The rising emphasis on sustainable agriculture practices and reduced chemical use will stimulate the growth of the agricultural biologicals market during the forecast period. Consumers and regulators are increasingly concerned about the environmental and health impacts of traditional pesticides and fertilizers, leading to a shift toward eco-friendly alternatives like agricultural

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biologicals. Moreover, the escalating demand for organic and non-GMO food products is propelling the market growth, as these products often require natural and biologically-based solutions for pest control and nutrient enhancement. Apart from this, numerous advancements in biotechnology and microbiology, including the development of innovative agricultural biological products that offer more efficient and targeted solutions for crop protection and yield improvement, have catalyzed market growth. Furthermore, the rising need to address food security challenges for a growing global population has accelerated the adoption of agricultural biologicals, as they provide a sustainable means to increase crop productivity while minimizing environmental harm.

#### Agricultural Biologicals Market Trends/Drivers:

Growing demand for sustainable agriculture

Traditional farming methods that heavily rely on chemical pesticides and synthetic fertilizers have raised concerns about their long-term environmental impact. As a response, agricultural biologicals have gained traction as a more environmentally friendly alternative. These products harness the power of nature, utilizing beneficial microorganisms, enzymes, and organic materials to enhance crop growth and protection. Sustainable agriculture addresses environmental concerns and aligns with consumers' preferences for food produced with minimal chemical residues. Furthermore, governments and regulatory bodies across the globe are promoting sustainable farming practices through incentives and regulations. This growing awareness and commitment to sustainability propel the adoption of agricultural biologicals as an essential component of modern agriculture.

Increasing awareness of health and environmental concerns

The rise in awareness of health and environmental issues associated with traditional agricultural chemicals is a significant factor catalyzing the demand for agricultural biologicals. Consumers are becoming more conscious of the potential health risks posed by chemical residues in food and the impact of pesticide runoff on water sources and ecosystems. As a result, there is a growing consumer preference for products that are free from chemical residues. Agricultural biologicals offer a safer and more sustainable alternative. They work through biological mechanisms, posing fewer risks to human health and the environment. Additionally, regulatory agencies of various nations are tightening restrictions on chemical pesticide usage, further incentivizing the adoption of biological alternatives. This heightened awareness of health and environmental concerns is encouraging farmers to integrate agricultural biologicals into their practices, ensuring safer and more eco-friendly agriculture.

Rapid advancements in biotechnology

The agricultural biologicals market benefits significantly from continuous advancements in biotechnology and microbiology. These scientific innovations have led to the development of highly effective and targeted agricultural biological products. These advanced products provide farmers with more efficient means to control pests, diseases, and weeds while simultaneously enhancing crop yields. Moreover, improvements in formulation and delivery systems make these biologicals easier to apply and integrate into existing farming practices. As a result, farmers are increasingly adopting these novel solutions to optimize their crop production and reduce their reliance on chemical inputs. The continuous evolution of biotechnology ensures that agricultural biologicals market remains dynamic and responsive to the ever-evolving needs of modern agriculture, thereby propelling the market growth.

#### Global Agricultural Biologicals Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the agricultural biologicals market forecast at the global, regional, and country levels from 2025-2033. Our report has categorized the market based on type, source, mode of application, and application.

Breakup by Type:

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Biopesticides  
Biofertilizers  
Biostimulants

The report has provided a detailed breakup and analysis of the market based on the type. This includes biopesticides, biofertilizers, and biostimulants.

Biopesticides are natural or biological substances derived from microorganisms, plants, or other natural sources that are used to control pests and diseases in agriculture. They offer a sustainable alternative to chemical pesticides, minimizing environmental impact and reducing chemical residues on crops. They assist in addressing increasing concerns about chemical pesticide use, providing effective pest management while aligning with eco-friendly farming practices.

Biofertilizers are microbial-based products that enhance soil fertility and plant nutrition. They contain beneficial bacteria, fungi, or other microorganisms that fix nitrogen, solubilize nutrients, and improve nutrient uptake by plants. By promoting healthier soil and plant growth, biofertilizers contribute to sustainable agriculture, reducing the need for synthetic fertilizers. This eco-friendly approach to soil enrichment drives the agricultural biologicals market, as it aligns with the growing demand for organic and sustainable farming practices.

Biostimulants are substances, often derived from natural sources, that stimulate plant growth and development. They enhance plant tolerance to abiotic stresses, such as drought and salinity, and improve nutrient uptake and utilization. Biostimulants offer a valuable tool for farmers seeking to increase crop yields while reducing environmental impact. Their ability to boost plant resilience and productivity propels their adoption and growth in the agricultural biologicals market as farmers strive for more efficient and sustainable agricultural practices.

Breakup by Source:

Microbials  
Macrobials  
Biochemicals  
Others

Microbials account for the majority of the market share

A detailed breakup and analysis of the market based on the source has also been provided in the report. This includes microbials, macrobials, biochemicals, and others. According to the report, microbials accounted for the largest market share.

Microbials are a source of agricultural biostimulants, comprising beneficial microorganisms like bacteria, fungi, and algae used to enhance crop growth and productivity. These microorganisms can be isolated from natural sources or engineered for specific functions. They offer a sustainable and eco-friendly approach to agriculture. Microbial-based biostimulants improve soil health, enhance nutrient availability, and stimulate beneficial interactions between plants and microorganisms. Their ability to boost plant growth, nutrient uptake, and stress tolerance is highly sought after by farmers aiming to optimize yields while reducing the environmental impact of agriculture. As the demand for sustainable farming practices grows, microbial-based biostimulants play a crucial role in promoting soil health and overall crop resilience, making them a key driver in the agricultural biostimulants market.

Breakup by Mode of Application:

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Foliar Spray  
Soil Treatment  
Seed Treatment  
Post-harvest

Foliar spray holds the largest share in the market

A detailed breakup and analysis of the market based on the mode of application has also been provided in the report. This includes foliar spray, soil treatment, seed treatment, post-harvest. According to the report, foliar spray accounted for the largest market share.

Foliar spray is a farming technique where a liquid solution, often containing nutrients or biostimulants, is applied directly to a plant's leaves. It allows for rapid absorption of essential compounds through the plant's stomata, bypassing root uptake and delivering nutrients or biostimulants directly to where they are needed. Foliar spray serves as an efficient delivery mechanism for biostimulant products.

Furthermore, these sprays can enhance nutrient uptake, improve photosynthesis, and boost the overall health and resilience of crops. As farmers seek to optimize crop yields, especially in stressful environmental conditions, foliar sprays with biostimulants offer a practical and effective solution. This application method is gaining immense popularity across the globe because it facilitates targeted and precise delivery of biostimulants, making them a valuable tool for sustainable and high-yield agriculture, thus contributing to the growth of the agricultural biostimulants market.

Breakup by Application:

Cereals and Grains  
Oilseed and Pulses  
Fruits and Vegetables  
Turf and Ornamentals  
Others

Fruits and vegetables represent the most popular application

A detailed breakup and analysis of the market based on the application has also been provided in the report. This includes cereals and grains, oilseed and pulses, fruits and vegetables, and turf and ornamentals. According to the report, fruits and vegetables accounted for the largest market share.

The main factors that are driving the growth of the fruits and vegetables segment are their unique characteristics and market demands. Biostimulants are increasingly adopted in fruit and vegetable cultivation as they promote better crop quality, improved yields, and extended shelf life, aligning with consumers' preference for high-quality, fresh produce. These crops often face various biotic and abiotic stressors, making them particularly responsive to biostimulant applications that enhance stress tolerance and nutrient absorption. Moreover, the organic and specialty crop segments, including fruits and vegetables, are witnessing substantial growth, and biostimulants are a natural fit for these markets, meeting the demand for sustainable and chemical-free farming practices. As consumers prioritize health-conscious choices and governments encourage sustainable agriculture, the use of biostimulants in fruit and vegetable production is poised to continue fostering growth in the agricultural biostimulants market.

Breakup by Region:

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North America  
United States  
Canada  
Asia Pacific  
China  
Japan  
India  
South Korea  
Australia  
Indonesia  
Others  
Europe  
Germany  
France  
United Kingdom  
Italy  
Spain  
Russia  
Others  
Latin America  
Brazil  
Mexico  
Others  
Middle East and Africa

North America exhibits a clear dominance in the market

The market research report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, North America accounted for the largest market share.

North America held the biggest share in the market since the region has a strong emphasis on sustainable farming practices and reduced chemical usage, which aligns with the eco-friendly nature of agricultural biologicals. Environmental concerns and a desire for safer, healthier food products have led to a higher demand for natural and organic farming methods, making agricultural biologicals a preferred choice for many North American farmers. Moreover, the well-established agricultural infrastructure and advanced research capabilities in North America facilitate the development and adoption of innovative biological products. This includes biopesticides, biostimulants, and biofertilizers that enhance crop yields, soil health, and pest management.

Apart from this, the implementation of stringent regulations on chemical pesticide usage in North America has escalated the adoption of safer alternatives like biopesticides, driving market growth. Furthermore, the region's vast agricultural landscape and diverse crop types, including grains, fruits, and vegetables, provide a broad application scope for agricultural biologicals, making North America a significant driver in the global agricultural biologicals industry.

#### Competitive Landscape:

The market is experiencing significant growth as key players in the agricultural biologicals domain are continually innovating to address the evolving needs of modern agriculture. One recent notable innovation is the development of precision agriculture

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solutions that integrate biologicals with digital technologies. Additionally, there is ongoing research into the use of CRISPR-Cas9 gene editing techniques to enhance the traits of beneficial microorganisms used in agricultural biologicals, making them more effective in pest and disease management. Furthermore, the rise in collaborations between major players and startups in the biotechnology sector is fostering the discovery of new microbial strains with unique capabilities for crop enhancement. These innovations collectively aim to further promote sustainable, efficient, and environmentally responsible agricultural practices.

The market research report has provided a comprehensive analysis of the competitive landscape in the market. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

Agri Life  
Agrinos Inc.  
Arysta LifeScience Corporation (UPL Limited)  
BASF SE  
Bayer AG  
Isagro (PI Industries)  
Marrone Bio Innovations Inc.  
Novozymes A/S  
Syngenta AG  
The Dow Chemical Company  
Valagro  
Valent U.S.A. LLC (Sumitomo Chemical Co. Ltd.)

#### Key Questions Answered in This Report

1. What was the size of the global agricultural biologicals market in 2024?
2. What is the expected growth rate of the global agricultural biologicals market during 2025-2033?
3. What are the key factors driving the global agricultural biologicals market?
4. What has been the impact of COVID-19 on the global agricultural biologicals market growth?
5. What is the breakup of the global agricultural biologicals market based on the type?
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7. What is the breakup of the global agricultural biologicals market based on the mode of application?
8. What is the breakup of the global agricultural biologicals market based on the application?
9. What are the key regions in the global agricultural biologicals market?
10. Who are the key companies/players in the global agricultural biologicals market?

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