

Fungal Microbial Inputs Market Forecasts to 2034 – Global Analysis By Product Type (Biofertilizers, Biopesticides, Biostimulants and Mycorrhizal Inoculants), Crop Type, Formulation, Mode of Application, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Fungal Microbial Inputs Market is accounted for \$276.0 million in 2026 and is expected to reach \$1125.0 million by 2034 growing at a CAGR of 19.2% during the forecast period. Fungal-based microbial inputs consist of helpful fungi applied in farming systems to boost soil quality, plant vigor, and protection against diseases. These include mycorrhizae, Trichoderma, and other beneficial fungal organisms that interact symbiotically with crops. They enhance nutrient availability, particularly phosphorus, and promote stronger root development. These fungi also inhibit harmful soil pathogens, decreasing dependence on synthetic fertilizers and pesticides. Commonly adopted in organic and regenerative agriculture, they support sustainable food production, improve soil biodiversity, and increase crop yields. Growing awareness of environmental sustainability is driving the global adoption of fungal microbial inputs as an eco-friendly agricultural technology solution system.

According to FAO (Food and Agriculture Organization) soil biological management information, beneficial microorganisms such as mycorrhizal fungi can naturally occur in association with over 90% of plant species globally, highlighting the widespread biological foundation for fungal microbial inputs in agriculture.

Market Dynamics:

Driver:

Rising demand for organic farming practices

Growing consumer preference for organically produced food is significantly driving the adoption of fungal microbial inputs. Farmers are transitioning from chemical-intensive practices to natural cultivation methods to meet this demand. Beneficial fungi like mycorrhizal species and Trichoderma improve nutrient uptake and soil quality while supporting chemical-free farming. These inputs align with organic certification requirements and help farmers access premium markets. Increasing awareness of health and environmental concerns is encouraging sustainable agricultural practices worldwide. As a result, fungal microbial inputs are becoming essential tools in organic farming systems aimed at maintaining productivity while reducing ecological impact and ensuring long-term soil sustainability.

Restraint:

Shorter shelf life and storage issues

The limited shelf life of fungal microbial inputs and their sensitivity to storage conditions present a major challenge for market growth. Since these products contain living microorganisms, they require controlled environments to remain effective. Exposure to heat, moisture fluctuations, or poor storage practices can reduce their viability. This complicates logistics, especially in areas lacking proper storage and transportation infrastructure. As a result, product effectiveness may decline before application, causing dissatisfaction among users. These handling constraints increase distribution costs and reduce reliability perceptions. Consequently, storage-related limitations continue to hinder broader acceptance and efficient deployment of fungal microbial agricultural solutions.

Opportunity:

Rising demand for high crop productivity

Increasing global food demand is creating strong opportunities for fungal microbial inputs as farmers aim to improve crop yields. With limited arable land and a rising population, agriculture must become more efficient and productive. Beneficial fungi enhance nutrient absorption, strengthen plant roots, and improve overall crop performance. These inputs provide a sustainable way to increase yields without harming soil ecosystems. Farmers are actively seeking solutions that balance productivity and environmental protection. As the need for higher agricultural output

continues to grow, fungal microbial inputs are becoming an important tool in achieving sustainable intensification and long-term food security goals globally.

Threat:

Competition from chemical fertilizers and pesticides

The fungal microbial inputs market faces significant pressure from the widespread use of synthetic fertilizers and pesticides. Chemical products remain dominant because they provide quick results and are deeply integrated into traditional farming systems. Farmers often rely on these conventional inputs due to their predictable performance and strong availability in the market. In comparison, fungal-based solutions require more time to show effects and depend on environmental conditions. The established presence of agrochemical companies and supportive government policies for synthetic inputs further intensify competition. This strong chemical dominance restricts the faster adoption of biological alternatives in agriculture.

Covid-19 Impact:

COVID-19 created both challenges and opportunities for the fungal microbial inputs market. In the early stages, lockdowns and supply chain disruptions reduced the availability of agricultural inputs, affecting production and distribution networks. Farmers faced delays in obtaining biological products, which temporarily slowed market growth. However, the pandemic also increased focus on food safety, health, and sustainable agriculture. This shift encouraged greater interest in eco-friendly farming practices and biological alternatives. Governments and agricultural bodies emphasized strengthening food systems and soil resilience. As a result, despite short-term interruptions, the crisis ultimately supported long-term awareness and adoption of fungal microbial inputs worldwide.

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

The biofertilizers segment is expected to account for the largest market share during the forecast period because of their strong role in improving soil nutrition and agricultural productivity. These products use beneficial fungi to naturally enhance the availability of essential nutrients required for plant growth. They are widely adopted by farmers seeking sustainable solutions that reduce dependence on synthetic fertilizers. Their compatibility with different cropping systems and farming methods makes them highly versatile. Growing concerns about soil health and environmental sustainability have

further increased their usage. As a result, biofertilizers continue to dominate the market as the most widely utilized fungal microbial input segment.

The greenhouse farming segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the greenhouse farming segment is predicted to witness the highest growth rate because of its highly controlled growing conditions and focus on premium crops. These systems enable precise regulation of environmental factors, allowing fungal-based inputs to perform more efficiently. Farmers in greenhouse operations increasingly rely on biological solutions to enhance plant vigor, prevent diseases, and improve overall productivity. Rising consumer demand for high-quality, chemical-free produce is further supporting this trend. With the global expansion of controlled-environment agriculture, greenhouse farming is emerging as the fastest-growing application area for fungal microbial inputs across modern agricultural systems.

Region with largest share:

During the forecast period, the Europe region is expected to hold the largest market share because of its advanced sustainable farming practices and stringent restrictions on chemical agricultural products. The region has a strong organic agriculture base that encourages the use of biological alternatives such as fungal inputs. Farmers are highly focused on maintaining soil quality and reducing environmental impact, which drives adoption. Supportive government programs, funding, and regulatory frameworks further promote eco-friendly farming methods. Additionally, well-developed agricultural systems and increasing demand for organic produce contribute to market growth. These combined factors make Europe the most prominent region in terms of market share for fungal microbial inputs.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest CAGR, driven by modernization in agriculture and increasing adoption of sustainable farming methods. Major countries like India, China, and others in Southeast Asia are shifting toward biological solutions to enhance soil health and productivity. Growing food demand from a large population is encouraging farmers to adopt more efficient and eco-friendly inputs. Supportive government policies promoting organic agriculture and reduced chemical usage are also boosting growth. With a vast farming sector and rising investments in bio-agricultural technologies, the region is experiencing rapid market

expansion.

Key players in the market

Some of the key players in Fungal Microbial Inputs Market include BASF SE, Bayer AG, Syngenta AG, Corteva Agriscience, Novozymes A/S, UPL Limited, Marrone Bio Innovations, Certis USA, Isagro S.p.A., Koppert Biological Systems, Lallemand Inc., BioWorks Inc., T. Stanes & Company Limited, Rizobacter Argentina S.A., Groundwork BioAg, Mycorrhizal Applications LLC, Premier Tech and Andermatt Biocontrol.

Key Developments:

In April 2026, BASF and Nutrien Ltd.® announced today a strategic collaboration designed to help farmers gain more value from sustainable farming practices already in use. Under this collaboration, Nutrien agronomists will work directly with growers to optimize yield potential using practical, on-farm sustainability practices. BASF digital tools – xarvio® FIELD MANAGER and xarvio BIOENERGY – will help connect growers with biorefineries and document the carbon intensity (CI) of their crops.

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 October 2025, Syngenta Crop Protection, LLC and Taranis announced they are formalizing their successful collaboration into a strategic partnership across the Midwest. The partnership will equip agricultural retailers with AI-powered crop management solutions, delivering innovative digital technologies that create significant value for both retailers and their grower customers.

Product Types Covered:

Biofertilizers

Biopesticides

Biostimulants

Mycorrhizal Inoculants

Crop Types Covered:

Cereals & Grains

Fruits & Vegetables

Oilseeds & Pulses

Turf & Ornamentals

Formulations Covered:

Solid

Liquid

Mode of Applications Covered:

Seed Treatment

Soil Treatment

Foliar Spray

Applications Covered:

Soil Fertility Enhancement

Crop Protection

Stress Tolerance Improvement

Nutrient Uptake Facilitation

End Users Covered:

Commercial Agriculture

Horticulture

Greenhouse Farming

Turf Management

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)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL FUNGAL MICROBIAL INPUTS MARKET, BY PRODUCT TYPE

- 5.1 Biofertilizers
- 5.2 Biopesticides
- 5.3 Biostimulants
- 5.4 Mycorrhizal Inoculants

6 GLOBAL FUNGAL MICROBIAL INPUTS MARKET, BY CROP TYPE

- 6.1 Cereals & Grains
- 6.2 Fruits & Vegetables
- 6.3 Oilseeds & Pulses
- 6.4 Turf & Ornamentals

7 GLOBAL FUNGAL MICROBIAL INPUTS MARKET, BY FORMULATION

- 7.1 Solid
- 7.2 Liquid

8 GLOBAL FUNGAL MICROBIAL INPUTS MARKET, BY MODE OF APPLICATION

- 8.1 Seed Treatment
- 8.2 Soil Treatment
- 8.3 Foliar Spray

9 GLOBAL FUNGAL MICROBIAL INPUTS MARKET, BY APPLICATION

- 9.1 Soil Fertility Enhancement
- 9.2 Crop Protection
- 9.3 Stress Tolerance Improvement
- 9.4 Nutrient Uptake Facilitation

10 GLOBAL FUNGAL MICROBIAL INPUTS MARKET, BY END USER

- 10.1 Commercial Agriculture

- 10.2 Horticulture
- 10.3 Greenhouse Farming
- 10.4 Turf Management

11 GLOBAL FUNGAL MICROBIAL INPUTS MARKET, BY GEOGRAPHY

- 11.1 North America
 - 11.1.1 United States
 - 11.1.2 Canada
 - 11.1.3 Mexico
- 11.2 Europe
 - 11.2.1 United Kingdom
 - 11.2.2 Germany
 - 11.2.3 France
 - 11.2.4 Italy
 - 11.2.5 Spain
 - 11.2.6 Netherlands
 - 11.2.7 Belgium
 - 11.2.8 Sweden
 - 11.2.9 Switzerland
 - 11.2.10 Poland
 - 11.2.11 Rest of Europe
- 11.3 Asia Pacific
 - 11.3.1 China
 - 11.3.2 Japan
 - 11.3.3 India
 - 11.3.4 South Korea
 - 11.3.5 Australia
 - 11.3.6 Indonesia
 - 11.3.7 Thailand
 - 11.3.8 Malaysia
 - 11.3.9 Singapore
 - 11.3.10 Vietnam
 - 11.3.11 Rest of Asia Pacific
- 11.4 South America
 - 11.4.1 Brazil
 - 11.4.2 Argentina
 - 11.4.3 Colombia
 - 11.4.4 Chile

- 11.4.5 Peru
- 11.4.6 Rest of South America
- 11.5 Rest of the World (RoW)
 - 11.5.1 Middle East
 - 11.5.1.1 Saudi Arabia
 - 11.5.1.2 United Arab Emirates
 - 11.5.1.3 Qatar
 - 11.5.1.4 Israel
 - 11.5.1.5 Rest of Middle East
 - 11.5.2 Africa
 - 11.5.2.1 South Africa
 - 11.5.2.2 Egypt
 - 11.5.2.3 Morocco
 - 11.5.2.4 Rest of Africa

12 STRATEGIC MARKET INTELLIGENCE

- 12.1 Industry Value Network and Supply Chain Assessment
- 12.2 White-Space and Opportunity Mapping
- 12.3 Product Evolution and Market Life Cycle Analysis
- 12.4 Channel, Distributor, and Go-to-Market Assessment

13 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 13.1 Mergers and Acquisitions
- 13.2 Partnerships, Alliances, and Joint Ventures
- 13.3 New Product Launches and Certifications
- 13.4 Capacity Expansion and Investments
- 13.5 Other Strategic Initiatives

14 COMPANY PROFILES

- 14.1 BASF SE
- 14.2 Bayer AG
- 14.3 Syngenta AG
- 14.4 Corteva Agriscience
- 14.5 Novozymes A/S
- 14.6 UPL Limited
- 14.7 Marrone Bio Innovations

- 14.8 Certis USA
- 14.9 Isagro S.p.A.
- 14.10 Koppert Biological Systems
- 14.11 Lallemand Inc.
- 14.12 BioWorks Inc.
- 14.13 T. Stanes & Company Limited
- 14.14 Rizobacter Argentina S.A.
- 14.15 Groundwork BioAg
- 14.16 Mycorrhizal Applications LLC
- 14.17 Premier Tech
- 14.18 Andermatt Biocontrol

List Of Tables

LIST OF TABLES

Table 1 Global Fungal Microbial Inputs Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Fungal Microbial Inputs Market Outlook, By Product Type (2023-2034) (\$MN)

Table 3 Global Fungal Microbial Inputs Market Outlook, By Biofertilizers (2023-2034) (\$MN)

Table 4 Global Fungal Microbial Inputs Market Outlook, By Biopesticides (2023-2034) (\$MN)

Table 5 Global Fungal Microbial Inputs Market Outlook, By Biostimulants (2023-2034) (\$MN)

Table 6 Global Fungal Microbial Inputs Market Outlook, By Mycorrhizal Inoculants (2023-2034) (\$MN)

Table 7 Global Fungal Microbial Inputs Market Outlook, By Crop Type (2023-2034) (\$MN)

Table 8 Global Fungal Microbial Inputs Market Outlook, By Cereals & Grains (2023-2034) (\$MN)

Table 9 Global Fungal Microbial Inputs Market Outlook, By Fruits & Vegetables (2023-2034) (\$MN)

Table 10 Global Fungal Microbial Inputs Market Outlook, By Oilseeds & Pulses (2023-2034) (\$MN)

Table 11 Global Fungal Microbial Inputs Market Outlook, By Turf & Ornamentals (2023-2034) (\$MN)

Table 12 Global Fungal Microbial Inputs Market Outlook, By Formulation (2023-2034) (\$MN)

Table 13 Global Fungal Microbial Inputs Market Outlook, By Solid (2023-2034) (\$MN)

Table 14 Global Fungal Microbial Inputs Market Outlook, By Liquid (2023-2034) (\$MN)

Table 15 Global Fungal Microbial Inputs Market Outlook, By Mode of Application (2023-2034) (\$MN)

Table 16 Global Fungal Microbial Inputs Market Outlook, By Seed Treatment (2023-2034) (\$MN)

Table 17 Global Fungal Microbial Inputs Market Outlook, By Soil Treatment (2023-2034) (\$MN)

Table 18 Global Fungal Microbial Inputs Market Outlook, By Foliar Spray (2023-2034) (\$MN)

Table 19 Global Fungal Microbial Inputs Market Outlook, By Application (2023-2034) (\$MN)

Table 20 Global Fungal Microbial Inputs Market Outlook, By Soil Fertility Enhancement (2023-2034) (\$MN)

Table 21 Global Fungal Microbial Inputs Market Outlook, By Crop Protection (2023-2034) (\$MN)

Table 22 Global Fungal Microbial Inputs Market Outlook, By Stress Tolerance Improvement (2023-2034) (\$MN)

Table 23 Global Fungal Microbial Inputs Market Outlook, By Nutrient Uptake Facilitation (2023-2034) (\$MN)

Table 24 Global Fungal Microbial Inputs Market Outlook, By End User (2023-2034) (\$MN)

Table 25 Global Fungal Microbial Inputs Market Outlook, By Commercial Agriculture (2023-2034) (\$MN)

Table 26 Global Fungal Microbial Inputs Market Outlook, By Horticulture (2023-2034) (\$MN)

Table 27 Global Fungal Microbial Inputs Market Outlook, By Greenhouse Farming (2023-2034) (\$MN)

Table 28 Global Fungal Microbial Inputs Market Outlook, By Turf Management (2023-2034) (\$MN)

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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