Microbial Pesticides Market Assessment, By Product Type [Bacterial Pesticides, Viral Pesticides, Fungal Pesticides], By Form [Solid, Liquid], By Crop Type [Cereals and Grains, Oilseeds and Pulses, Fruits and Vegetables, Others], By Application [Seed Treatment, Soil Treatment, Others], By Region, Opportunities and Forecast, 2017-2031F

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Report description:

Global microbial pesticides market is projected to witness a CAGR of 6.62% during the forecast period 2024-2031, growing from USD 1.45 billion in 2023 to USD 2.42 billion in 2031. The market is witnessing substantial growth, mainly triggered by the demand for eco-friendly forms of farming and the concern for environmental health. Microbial pest control agents are products created from natural organisms, such as bacteria, fungi, and viruses, which are safe for use in agriculture and do not disturb the balance of the environment. Instead of deadly synthetic chemicals aimed at eradicating pests, these biodegradable agents eliminate specific insects that destroy crops without harming the beneficial insects.
The market is subject to many driving factors, including organic farming development, restrictive policies on chemical pesticides, and growing consumer attitudes toward residue-free food items. In this regard, leading companies are actively engaging in research and development to improve the inherent efficacy of products and the product range for different pests. Besides, innovations in biotechnology are aiding the development of new microbial formulations, further enhancing market growth. According to the Food and Agriculture Organization (FAO), in 2022, pesticides applied by the agricultural sector globally amount to 3.70 million tons (Mt) of active ingredients. Compared with 2021, this is a 4% rise, a 13 percent rise over the preceding decade. Factors such as low farmer awareness regarding microbial pesticides and their comprehensive training needs may act as a barrier to market growth. However, the optimism surrounding the market is still strong as there is likely to be further innovation and investment, encouraging the adoption of microbial pesticides in agriculture, an essential aspect of integrated pest management practices globally.

In December 2023, Syngenta Crop Protection AG introduced CERTANO, a bio-nematicide aimed at the sugarcane agriculture market. The bio-nematicide is made up of the multi-functional microbe Bacillus velezensis, which is effective against nematodes and targets diseases commonly associated with the sugarcane plant. The product eases the use of controlling a number of genera of entomopathogenic nematodes associated with more than one crop, severely limiting sugarcane's overall yield.

Sustainable Agriculture Demand to Catalyze Market Expansion

The need for sustainable agriculture is one of the significant factors that will ultimately cause the microbial pesticides market to grow due to increasing consumer demand for green farming. In light of the mounting concern regarding the use of chemical pesticides and their adverse effects on the environment and health, the trend is toward a greater proportion of consumers requesting food without such harmful remnants. This change in perception fuels the willpower of the farmers towards sustainable pest control methods, such as microbial pest control agents that effectively eliminate pests without causing significant damage to the environment. For instance, in September 2023, Atlox BS-50 was launched by Croda International Plc, a delivery method designed to address the demands of the expanding biopesticide sector. For spore-forming bacteria, Atlox BS-50 is a ready-to-use powder delivery method. Its ease of application reduces formulation development time because all that is needed to finish the final product is the addition of the microbe. Atlox BS-50's components have been meticulously refined by Croda's experts to deliver optimal performance. They have undergone viability testing to guarantee their compatibility with common bacteria, hence offering diversity in their application.

Additionally, the use of microbial pesticides by the farmers helps them not only meet the organic farming certification standards but also promotes soil and biodiversity. This approach creates market motivation for more producers as the costs of such sustainable pest management are viewed as reasonable by producers for the benefits it yields in the long run.

Regulatory Support Influences Market Growth

The microbial pesticides market is expanding due to heavy reliance on regulatory support as the trends across many countries indicate increased restrictions on the use of traditional agrochemicals. For instance, in July 2024, in Brussels, new legislation came into force banning the application of traditional pesticides on farmlands starting in 2030. By 2025, farmers will make them violators of the law.

Such measures are taken to reduce the harmful impact of chemical contaminants on the population and the ecosystem, leading to the search for greener ways of protection. Regulatory agencies like the U.S. Environmental Protection Agency (EPA) and the European Food Safety Authority (EFSA) encourage the registration and use of microbial pesticides due to their benefits in eliminating pesticide risks.

Furthermore, there are many countries that are developing frameworks that promote the use of environmentally friendly farming practices, usually by providing incentives for farmers to adopt biological means of pest control. Accordingly, microbial pesticides are more regarded as conforming to the applicable agri-food standards on the local and global market. This favorable regulatory environment, besides improving market acceptance, encourages proceedings and resources to be devoted to the creation of microbial solutions, thus contributing to market growth.

Fungal Pesticides Hold a Significant Market Share

The microbial pesticides market is experiencing rapid growth and is primarily dominated by fungal pesticides due to their effectiveness in the control of various agricultural pests and diseases. These biopesticides derived from useful fungi provide selective control of numerous pathogens and insects and, thus, are useful in integrated pest management practices. They promote better crop growth by outcompeting damaging microorganisms and breaking down the pathogens in plants, which many farmers in search of environmentally safe products find irresistible. Aligning with the trend, in October 2023, Bayer AG launched its very first bio-fungicide product, Serenade SC, in Vietnam. This bio-fungicide solution is produced through a fermentation process using a patented Bacillus Subtilis QST 713 strain. The bio-fungicide has a remarkable level of intrinsic stability that allows its shelf life and preservation to be similar to those of existing crop protection products in the market. It effectively controls various diseases associated with various crops, ranging from downy mildew on onions to leaf spot on tomatoes, grapefruit cankers, bananas, and others.

Fungal pesticides are used more often due to their low toxicity towards non-target organisms and their safety to the environment as opposed to chemical-based pesticides. The scope and effectiveness of fungal biopesticides have been increasing with the progress in research and improvement in product formulations. This trend benefits fungal pesticides since they occupy the largest

share in the microbial pesticides market as an alternative shift towards sustainable agriculture and food security policies.

North America to Dominate the Market Share

From a regional perspective, North America leads the microbial pesticide market owing to a synergy of modern agriculture practices, effective legislation, and increasing adoption of green farming measures. The United States and Canada have viable markets for microbial pest control agents owing to the consumers' inclination towards natural and environmentally friendly products. There are stringent policies with regard to the use of chemical pesticides, making it imperative for many farmers to seek out less harmful alternatives, which has led to more funding, particularly in microbial pest control solutions. Capitalizing on the current market opportunity, in January 2024, Certis USA L.L.C. launched a biofungicide, Convergence, offering corn and soybean farmers a synergistic, functional, and cost-effective solution to achieve good disease control and plant health. Convergence, developed for row crops using Bacillus amyloliquefaciens strain D747, employs naturally occurring, carefully chosen microorganisms to form a living shield that protects against diseases and maintains the delicate balance of soil and plant health while also increasing the productivity of the farmer.

In addition, farmers across North America have accepted the use of microbial pesticides in their pest control regimes due to their effectiveness in increasing crop production with less environmental harm. The region is experiencing rapid geographic expansion due to the presence of key market competitors and active research and development in this field.

Future Market Scenario (2024 – 2031F)

- An increased understanding of sustainability will increase farmers' acceptance among farmers, especially in organic and conventional farming.
- Intensifying research and development efforts would result in improved and varied microbial formulations, further improving pest management prospects.
- More focus on improving educational programs will use microbial solutions appropriately, which will enhance their market penetration.

Key Players Landscape and Outlook

The competitive structure of the microbial pesticides industry comprises a wide array of notable players, including high-end agri-biotech corporations, budding firms, and research centers. These organizations are dedicated to advanced microbial formulations for better control of pests and the surging appeal of environmentally friendly agricultural practices. Collaboration is a common practice that enhances creativity and expedites the commercialization of products through joint ventures and research projects. For instance, in October 2023, to control bed bugs emerging as a threat in Europe, Aprehend was introduced by Andermatt Group AG in partnership with ConidioTec LLC. Aprehend is a fungal pesticide, which is a product based on oil dispersion of a fungus that causes natural infection in larvae of several types of insects called Beauveria bassiana.

The scope of these important players remains positive since they are adjusting to policy changes and promoting green products. It is believed that there will be a more focused investment in research and development, which will lead to the creation of new microbial solutions for particular agricultural needs. Furthermore, the growth in emerging markets can be observed because of the rise of integrated pest management practices by farmers in the regions. Overall, the current pest management practices will change in light of the dynamics of the competition, mainly focusing on sustainability, efficiency, and the effectiveness of pest control.

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