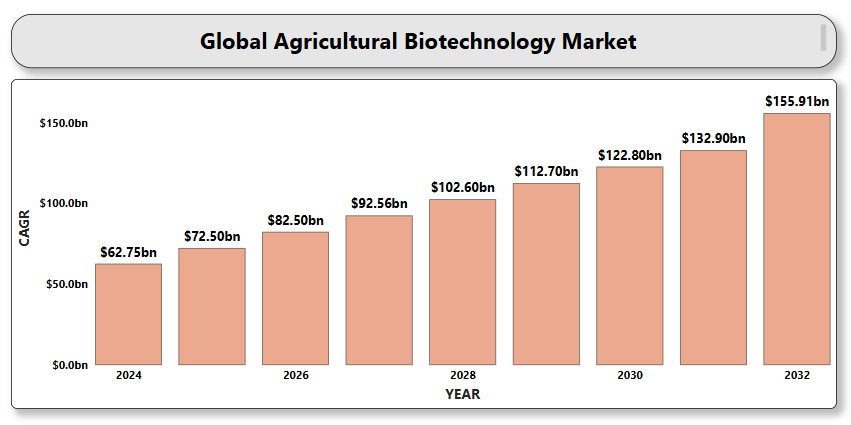
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**Global Agricultural Biotechnology Market**

According to Intelli, the Global Agricultural Biotechnology Market size was valued at USD 62.75 Billion in 2024 and is projected to reach USD 155.91 Billion by 2032, growing at a CAGR of 12.01% during the forecast period 2024 to 2032.



Agricultural biotechnology is a rapidly advancing field at the intersection of biology, agriculture, and technology, transforming the way food is grown, processed, and consumed across the globe. It utilizes advanced scientific methods such as genetic engineering, molecular markers, tissue culture, and genome editing to alter living organisms, mainly crops and livestock with the goal of improving their yield, resistance to environmental stressors, and nutritional value. In an era marked by climate change, population growth, diminishing arable land, and increasing food insecurity, agricultural biotechnology offers sustainable solutions to some of the most pressing challenges facing global agriculture. Through the development of genetically modified (GM) crops, for instance, scientists have enabled plants to withstand droughts, resist pests and diseases, and reduce dependency on chemical pesticides and fertilizers, thereby lowering environmental impact while increasing yields. Beyond crop improvement, agricultural biotechnology plays a vital role in animal husbandry, biofertilizer and biopesticide development, and the creation of value-added food products with improved health benefits. Innovations such as CRISPR gene editing and precision breeding are enabling more targeted and ethical modifications, accelerating the pace of agricultural research while addressing public concerns over safety and biodiversity. Agricultural biotechnology ultimately paves the way for a new era of smart farming, an approach where cutting-edge innovation aligns with sustainable practices to secure a reliable, nutritious, and sufficient food supply for future generations. By equipping farmers with advanced tools and techniques, it fosters a more adaptive and resilient agricultural system capable of withstanding climate challenges and evolving global demands.

**Global Agricultural Biotechnology Market Definition**

The Global Agricultural BiotechnologyMarket refers to the worldwide industry centered on the development, commercialization, and application of biotechnological innovations in agriculture to enhance crop productivity, improve resistance to pests and environmental A close-up of hands holding a tablet and a pen

Description automatically generatedstresses, and promote sustainable farming practices. This market includes a diverse array of products and technologies such as GM seeds, bio-pesticides, bio-fertilizers, molecular diagnostic tools, and advanced genome editing techniques like CRISPR.

**Global Agricultural Biotechnology Market Overview**

The Global Agricultural Biotechnology Market is driven by several key factors that collectively underscore its rapid growth and importance. Rising global population and the consequent demand for higher agricultural productivity have made biotechnology essential for maximizing crop yields and ensuring food security. The rising prevalence of crop diseases, pest outbreaks, and the escalating effects of climate change have significantly driven the uptake of genetically modified crops and stress-tolerant plant varieties. At the same time, the urgent need to minimize the environmental impact of conventional farming practices, particularly the overuse of chemical pesticides and fertilizers, is spurring increased demand for sustainable alternatives such as bio-pesticides and bio-fertilizers. Government support through favorable policies, research funding, and regulatory approvals further boosts innovation in the sector. Moreover, advancements in gene editing technologies such as CRISPR, coupled with rising investments from key market players, are propelling the development of precise and sustainable agricultural solutions.

**Global Agricultural Biotechnology Market Segmentation**

The Global Agricultural Biotechnology Market is strategically segmented to capture the full spectrum of innovation and application, spanning product types, genetic traits, crop categories, end-use applications, and regional dynamics, enabling a comprehensive understanding of its growth drivers and market potential.

**Global Agricultural Biotechnology Market, By Product Type**

* **Genetically Modified (GM) Seeds**
* **Biopesticides**
* **Biofertilizers**
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In the Global Agricultural Biotechnology Market, Genetically Modified (GM) Seeds dominate the product segment, driven by their widespread adoption across major agricultural economies for enhancing crop yield, pest resistance, and adaptability to environmental stress. Biopesticides and biofertilizers are experiencing significant growth, driven by the rising demand for environmentally friendly and sustainable alternatives to traditional agrochemicals. The growing adoption of organic farming practices and the implementation of stricter environmental regulations are further accelerating their use. Meanwhile, biostimulants, although a newer category, are gaining traction for their ability to enhance plant growth, improve nutrient absorption, and increase resilience to environmental stresses, thus boosting crop productivity in a more sustainable way.

**Global Agricultural Biotechnology Market, By Trait**

* **Herbicide Tolerance**
* **Insect Resistance**
* **Disease Resistance**
* **Others**

In the Global Agricultural Biotechnology Market, the Herbicide Tolerance segment holds a significant share, driven by the increasing need for crops that can withstand herbicide applications, thereby simplifying weed management and boosting crop yields. Insect Resistance is another dominant trait, with genetically modified crops offering enhanced protection against pests, reducing the reliance on chemical pesticides and promoting more sustainable farming practices. Disease Resistance is also a growing focus, as crops with resistance to common plant diseases help minimize yield losses and enhance food security. Additionally, the Others category includes traits such as drought tolerance and enhanced nutritional profiles, which are gaining traction in addressing the challenges posed by climate change and growing global food demand.

**Global Agricultural Biotechnology Market, By Crop Type**

* **Cereals & Grains**
* **Oilseeds & Pulses**
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* **Others**

In the Global Agricultural Biotechnology Market, the Cereals & Grains segment holds a significant market share, driven by the widespread use of biotechnology to enhance yield, improve resistance to pests, and increase nutritional value in staple crops like corn, wheat, and rice. Oilseeds & Pulses are a major focus within the agricultural biotechnology sector, with biotechnological advancements targeting improvements in oil content, disease resistance, and drought resilience, particularly in crops such as soybeans, canola, and lentils. The Fruits & Vegetables segment is also seeing rapid growth, as biotechnology aids in extending shelf life, enhancing disease resistance, and boosting the nutritional profile of a wide range of produce. Meanwhile, the Others category includes crops like cotton and tobacco, where biotechnology is being applied to enhance fiber quality, improve pest resistance, and increase overall yields.

**Global Agricultural Biotechnology Market,** **By Application**

* **Crop Improvement**
* **Biofuels**
* **Animal Biotechnology**

In the Global Agricultural Biotechnology Market, Crop Improvement is the leading application, driven by the demand for genetically modified crops that offer higher yields, enhanced resistance to pests and diseases, and greater adaptability to changing environmental conditions. The Biofuels segment is gaining momentum as biotechnology plays a pivotal role in developing more efficient biofuel crops, such as algae and energy crops, which help reduce dependence on fossil fuels and promote renewable energy solutions. Animal Biotechnology is another key area, with advancements aimed at improving livestock health, enhancing breeding techniques, and increasing productivity in meat, milk, and other animal-derived products.

**Global Agricultural Biotechnology Market, By Region**

* **North America**
* **Europe**
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* **Latin America**
* **Middle East & Africa**

The Global Agricultural Biotechnology Market is geographically diverse, with significant activity in several regions. North America maintains a leading position in the agricultural biotechnology market, supported by robust research and development efforts, a favorable regulatory environment, and the widespread adoption of genetically modified crops, especially in the United States and Canada. In contrast, Europe takes a more cautious stance, with stringent regulations surrounding genetically modified organisms (GMOs), yet remains a significant player due to growing interest in sustainable, bio-based solutions such as biopesticides and biofertilizers. The Asia-Pacific region is experiencing rapid growth, particularly in countries like China and India, where substantial investments are being made in agricultural biotechnology to address food security and improve crop productivity. Latin America is also expanding, with countries like Brazil and Argentina relying heavily on biotechnology to boost yields in key crops like soybeans and corn. Meanwhile, the Middle East & Africa is emerging as a promising market, driven by the urgent need for climate-resilient crops and innovative solutions to tackle drought and food insecurity.

**Key Players**

The “Global Agricultural Biotechnology Market" study report will provide valuable insight emphasizing the Global market. The major players in the market Monsanto, Syngenta, Bayer CropScience, Dow AgroSciences, BASF, DuPont Pioneer, Corteva Agriscience, Limagrain, KWS SAAT, Sangamo Therapeutics, InVivo, Marrone Bio Innovations, BioSeed, AgBiome, Evogene, Oxitec, Novozymes, Plant Health Care among others. Our market analysis also entails a section solely dedicated to such major players wherein our analysts provide an insight into the financial statements of all the major players, along with product benchmarking and SWOT analysis.

**Key Developments**

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  Description automatically generatedIn 2025, researchers unveiled Pesti-Gen, an innovative generative model powered by variational auto-encoders, aimed at designing pesticide candidates with enhanced, optimized properties.
* In 2024, the development of bionematicides, a cutting-edge class of biopesticides, is providing a sustainable solution to nematode-related challenges in agriculture.
* In 2024, ADM and Smucker forged a strategic partnership to advance regenerative agriculture within the U.S. peanut value chain. This collaboration aims to enhance soil health, boost biodiversity, and improve water resource management, paving the way for more sustainable and resilient farming practices in the region.

**Market Attractiveness**

The image of market attractiveness provided further helps to get information about the region leading in the Global Agricultural Biotechnology Market. We cover the major impacting factors driving the industry growth in the given region.

**Porter’s Five Forces**

The image provided would further help to get information about Porter's five forces framework providing a blueprint for understanding the behavior of competitors and a player's strategic positioning in the respective industry. Porter's five forces model can be used to assess the competitive landscape Global Agricultural Biotechnology Market, gauge the attractiveness of a particular sector, and assess investment possibilities.

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