

Genetically Modified Crops Market Size, Share, Trends, Analysis, and Forecast 2025-2034 | Global Industry Growth, Competitive Landscape, Opportunities, and Challenges

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Abstracts

Global Genetically Modified Crops Market is valued at USD 22.2 billion in 2025. Further, the market is expected to grow at a CAGR of 5.6% to reach USD 36.2 billion by 2034.

The genetically modified (GM) crops market is expanding rapidly as global agricultural systems seek solutions to improve food security, crop resilience, and sustainability. GM crops are designed to enhance yield, resist pests, tolerate herbicides, and withstand extreme climatic conditions, making them an essential tool in modern agriculture. Countries with high population growth and food demand, such as the United States, Brazil, China, and India, are investing heavily in biotech crops to boost agricultural productivity. Additionally, advancements in gene-editing technologies, such as CRISPR, are further driving the market, allowing for more precise genetic modifications. Despite their benefits, GM crops continue to face regulatory scrutiny, ethical concerns, and resistance from certain consumer groups. Nonetheless, increasing acceptance among farmers and favorable government policies are expected to sustain market growth as stakeholders recognize the role of GM crops in addressing food security and climate challenges.

In 2024, the GM crops market experienced substantial growth, primarily driven by the adoption of genetically engineered drought-resistant and pest-resistant crop varieties. Major agricultural economies, including the U.S. and Argentina, saw increased planting of GM soybeans, maize, and cotton due to their proven benefits in yield enhancement and input cost reduction. Regulatory approvals in several Asian and European countries signaled a shift toward greater acceptance of GM crops, helping reduce trade barriers

and expanding export opportunities. The integration of AI and big data in precision farming further optimized GM crop cultivation, enabling farmers to monitor crop health, predict yields, and reduce pesticide use. Additionally, collaborations between biotech firms and agricultural companies led to the commercialization of novel GM traits, such as improved nutrient content and disease resistance, enhancing the market's value proposition. However, ongoing debates around labeling regulations and environmental concerns remained key challenges, influencing consumer perception and regulatory frameworks.

Looking ahead to 2025 and beyond, the GM crops market is poised for further expansion, supported by advancements in synthetic biology and gene-editing technologies. Emerging economies, particularly in Africa and Southeast Asia, are expected to increase their adoption of GM crops as governments ease restrictions to support food security initiatives. Climate-smart agriculture practices will gain traction, with GM crops playing a crucial role in mitigating the impact of extreme weather patterns on food production. The introduction of multi-trait GM crops, which combine resistance to pests, herbicides, and climate stressors, will further enhance the market's appeal. Additionally, sustainable agricultural practices, such as reduced chemical usage and regenerative farming, will align with consumer preferences for eco-friendly food production. However, regulatory uncertainties and ongoing trade disputes could still pose hurdles to market growth. As global food demand continues to rise, GM crops will remain a critical component of agricultural innovation, offering scalable solutions to address productivity challenges and environmental sustainability.

Key Market Trends

Growing Adoption of Gene-Edited Crops: CRISPR and other gene-editing technologies are accelerating the development of precise genetic modifications, improving crop yield, nutritional content, and resistance to environmental stress.

Increased Regulatory Approvals: More countries are easing restrictions and granting approvals for GM crop cultivation, driven by the need for higher agricultural productivity and food security.

Expansion of Drought-Resistant Crops: Climate change concerns are driving the demand for GM crops with improved drought resistance, helping farmers mitigate yield losses in water-scarce regions.

Integration of AI in Precision Agriculture: Advanced data analytics and AI-driven insights

are optimizing GM crop farming, enhancing monitoring, yield prediction, and resource efficiency.

Consumer Shift Toward Sustainable GM Crops: Biotech firms are focusing on developing GM crops that require fewer chemical inputs, aligning with consumer demand for environmentally friendly food production.

Market Growth Drivers

Rising Global Food Demand: Increasing population and food security concerns are driving the need for higher-yielding, resilient GM crops to sustain agricultural production.

Government Support and Research Investments: Public and private sector investments in biotechnology research are accelerating the development and commercialization of GM crops worldwide.

Reduction in Agricultural Input Costs: GM crops reduce reliance on pesticides and herbicides, leading to lower farming costs and improved profitability for farmers.

Climate Change Adaptation: With rising instances of extreme weather conditions, GM crops offer a solution by enhancing resilience against droughts, pests, and diseases.

Market Challenge

Regulatory and Consumer Resistance: Concerns over food safety, biodiversity impact, and ethical considerations continue to create regulatory hurdles and consumer skepticism, affecting market adoption.

Market Segmentation

By Trait

Herbicide Tolerance

HT

Insect Resistance

IR

Stacked Traits

ST

Other Traits

By Crop

Soybean

Cotton

Maize

Oilseed Rape

Other Crops

By Technique

Gene Guns

Electroporation

Microinjection

Agrobacterium

Other Techniques

By Type of Modification

Transgenic

Cis-genic

Sub-genic

Multiple Trait Integration

By Application

Scientific Research

Agriculture Crops

By Geography

North America (USA, Canada, Mexico)

Europe (Germany, UK, France, Spain, Italy, Rest of Europe)

Asia-Pacific (China, India, Japan, Australia, Vietnam, Rest of APAC)

The Middle East and Africa (Middle East, Africa)

South and Central America (Brazil, Argentina, Rest of SCA)

What You Receive

Global Genetically Modified Crops market size and growth projections (CAGR), 2024- 2034

Impact of recent changes in geopolitical, economic, and trade policies on the demand and supply chain of Genetically Modified Crops.

Genetically Modified Crops market size, share, and outlook across 5 regions and 27 countries, 2025- 2034.

Genetically Modified Crops market size, CAGR, and Market Share of key products, applications, and end-user verticals, 2025- 2034.

Short and long-term Genetically Modified Crops market trends, drivers, restraints, and opportunities.

Porter's Five Forces analysis, Technological developments in the Genetically Modified Crops market, Genetically Modified Crops supply chain analysis.

Genetically Modified Crops trade analysis, Genetically Modified Crops market price analysis, Genetically Modified Crops Value Chain Analysis.

Profiles of 5 leading companies in the industry- overview, key strategies, financials, and products.

Latest Genetically Modified Crops market news and developments.

The Genetically Modified Crops Market international scenario is well established in the report with separate chapters on North America Genetically Modified Crops Market, Europe Genetically Modified Crops Market, Asia-Pacific Genetically Modified Crops Market, Middle East and Africa Genetically Modified Crops Market, and South and Central America Genetically Modified Crops Markets. These sections further fragment the regional Genetically Modified Crops market by type, application, end-user, and country.

Who can benefit from this research

The research would help top management/strategy formulators/business/product development/sales managers and investors in this market in the following ways

1. The report provides 2024 Genetically Modified Crops market sales data at the global, regional, and key country levels with a detailed outlook to 2034, allowing companies to calculate their market share and analyze prospects, uncover new markets, and plan market entry strategy.
2. The research includes the Genetically Modified Crops market split into different types and applications. This segmentation helps managers plan their products and budgets based on the future growth rates of each segment
3. The Genetically Modified Crops market study helps stakeholders understand the breadth and stance of the market giving them information on key drivers, restraints, challenges, and growth opportunities of the market and mitigating risks
4. This report would help top management understand competition better with a detailed SWOT analysis and key strategies of their competitors, and plan their position in the business

5. The study assists investors in analyzing Genetically Modified Crops business prospects by region, key countries, and top companies' information to channel their investments.

Available Customizations

The standard syndicate report is designed to serve the common interests of Genetically Modified Crops Market players across the value chain and include selective data and analysis from entire research findings as per the scope and price of the publication.

However, to precisely match the specific research requirements of individual clients, we offer several customization options to include the data and analysis of interest in the final deliverable.

Some of the customization requests are as mentioned below –

Segmentation of choice – Our clients can seek customization to modify/add a market division for types/applications/end-uses/processes of their choice.

Genetically Modified Crops Pricing and Margins Across the Supply Chain, Genetically Modified Crops Price Analysis / International Trade Data / Import-Export Analysis

Supply Chain Analysis, Supply–Demand Gap Analysis, PESTLE Analysis, Macro-Economic Analysis, and other Genetically Modified Crops market analytics

Processing and manufacturing requirements, Patent Analysis, Technology Trends, and Product Innovations

Further, the client can seek customization to break down geographies as per their requirements for specific countries/country groups such as South East Asia, Central Asia, Emerging and Developing Asia, Western Europe, Eastern Europe, Benelux, Emerging and Developing Europe, Nordic countries, North Africa, Sub-Saharan Africa, Caribbean, The Middle East and North Africa (MENA), Gulf Cooperation Council (GCC) or any other.

Capital Requirements, Income Projections, Profit Forecasts, and other parameters to prepare a detailed project report to present to Banks/Investment Agencies.

Customization of up to 10% of the content can be done without any additional charges.

Note: Latest developments will be updated in the report and delivered within 2 to 3 working days.

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