

# Genetically Modified Vegetables Market Outlook 2025-2034: Market Share, and Growth Analysis By Type Of Modification (Transgenic, Cis-Genic, Sub- Genic, Multiple Trait Integration), By Crop (Soybean, Cotton, Maize, Oilseed Rape, Canola, Alfalfa, Other Crops), By Technique, By Trait, By Application

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## Abstracts

The Genetically Modified Vegetables Market is valued at USD 135.2 million in 2025 and is projected to grow at a CAGR of 11% to reach USD 345.3 million by 2034. The genetically modified (GM) vegetables market is gaining momentum as the demand for higher-yielding, disease-resistant, and nutritionally enhanced crops continues to rise. With a growing global population and increasing concerns over food security, genetically modified vegetables offer a viable solution to enhance agricultural productivity while minimizing resource consumption. Traits such as pest resistance, drought tolerance, and extended shelf life have made GM vegetables an attractive choice for farmers and consumers alike. However, regulatory scrutiny, environmental concerns, and consumer skepticism still pose challenges to widespread adoption. While North America remains a dominant player in the market, emerging economies in Asia-Pacific and Latin America are rapidly adopting GM vegetable cultivation due to rising food demand and supportive policies. As biotechnological advancements continue, the market is expected to witness further innovation, paving the way for sustainable and resilient food systems. The genetically modified vegetables market experienced significant progress, driven by regulatory approvals and technological breakthroughs. Several countries, including China and India, eased restrictions on GM crop cultivation, allowing farmers access to high-yield, pest-resistant vegetable varieties. Advances in CRISPR gene-editing technology enabled the development of GM vegetables with enhanced nutrient profiles and improved resistance to environmental stressors.

Consumer acceptance also improved, particularly in regions where food security concerns were pressing. The year saw increased investments from biotechnology firms and agricultural companies in research and development, leading to the commercialization of new GM vegetable varieties. Additionally, the expansion of controlled environment agriculture (CEA), such as vertical farming and hydroponics, provided an ideal setting for GM vegetables to thrive with reduced dependency on chemical pesticides. Despite progress, challenges persisted, particularly in Europe, where regulatory frameworks remained stringent, and public opposition slowed adoption. The genetically modified vegetables market is expected to witness further expansion, driven by evolving consumer preferences and advancements in gene-editing techniques. The integration of artificial intelligence and big data in agricultural biotechnology will accelerate the development of next-generation GM vegetables with tailored nutritional benefits and improved climate resilience. Regulatory landscapes are also expected to become more accommodating in several countries, particularly in Africa and Southeast Asia, where food security concerns are paramount. Additionally, the growing acceptance of precision agriculture will enhance the efficiency of GM vegetable farming, leading to better yields and reduced environmental impact. The rising demand for plant-based and functional foods is likely to create opportunities for genetically modified vegetables with enhanced health benefits, such as increased antioxidant content or improved digestibility. However, ethical debates and consumer skepticism will remain key challenges, requiring transparent labeling and public awareness campaigns to drive market acceptance.

## Key Insights Genetically Modified Vegetables Market

**Advancements in Gene-Editing Technologies:** Breakthroughs in CRISPR and RNA interference are enabling more precise modifications in vegetable crops, enhancing their nutritional content and disease resistance.

**Growing Demand for Climate-Resilient Crops:** Climate change is increasing the need for GM vegetables that can withstand extreme weather conditions, ensuring food security in vulnerable regions.

**Expansion of Controlled Environment Agriculture (CEA):** Vertical farming and hydroponics are providing optimal conditions for GM vegetables, minimizing pesticide use and maximizing yields.

**Increasing Consumer Acceptance in Emerging Markets:** Rising food security concerns and government support in countries like China, India, and Brazil are

fostering higher acceptance of GM vegetables.

**Integration of AI in Agricultural Biotechnology:** AI-driven research is accelerating the discovery and optimization of genetically modified vegetable traits, making crop development more efficient.

**Rising Global Food Demand:** The increasing population and shrinking arable land are driving the need for high-yield, genetically modified vegetable crops to ensure food security.

**Government Support and Policy Relaxations:** Several countries are easing restrictions and promoting GM crops to enhance agricultural productivity and reduce dependency on imports.

**Improved Nutritional Profiles:** Advances in genetic engineering are allowing for the development of GM vegetables with enhanced vitamins, antioxidants, and other health benefits.

**Reduction in Pesticide and Herbicide Use:** GM vegetables with in-built pest and disease resistance are reducing the need for chemical applications, making agriculture more sustainable.

**Consumer Skepticism and Ethical Concerns:** Public concerns over the long-term health effects and environmental impact of GM vegetables continue to limit their widespread acceptance, necessitating transparent communication and regulatory oversight.

## Genetically Modified Vegetables Market Segmentation

### By Type Of Modification

Transgenic

Cis-Genic

Sub-Genic

Multiple Trait Integration

## By Crop

Soybean

Cotton

Maize

Oilseed Rape

Canola

Alfalfa

Other Crops

## By Technique

Gene Guns

Electroporation

Microinjection

Agrobacterium

Other Techniques

## By Trait

Herbicide Tolerance (HT)

Insect Resistance (IR)

Stacked Traits

Other Traits

By Application

Scientific Research

Agriculture Crops

Key Companies Analysed

BASF SE

Bayer AG

The Dow Chemical Company

Syngenta AG

Dupont de Nemours Inc.

Groupe Limagrain Holding SA

JR Simplot Company

JKAgri Genetics Ltd.

Mahyco Private Limited

Calyxt Inc.

Stine Seed Farm Inc.

Nuseed Pty Ltd.

KWS SAAT SE & Co. KGaA

Sakata Seed Corporation

Okanagan Specialty Fruits Inc.

Pairwise Plants LLC

EuropaBio

Biotechnology Industry Organization

Corteva Inc.

Sakata Seed America Inc.

Jivo Wellness Pvt Ltd.

Ambar Protein Industries Limited

The Monsanto Company

Limagrain Holding SA

Precigen Inc.

Arcadia Biosciences Inc.

Aerofarms Inc.

Benson Hill Biosystems Inc. .

## Genetically Modified Vegetables Market Analytics

The report employs rigorous tools, including Porter's Five Forces, value chain mapping, and scenario-based modeling, to assess supply–demand dynamics. Cross-sector influences from parent, derived, and substitute markets are evaluated to identify risks and opportunities. Trade and pricing analytics provide an up-to-date view of international flows, including leading exporters, importers, and regional price trends.

Macroeconomic indicators, policy frameworks such as carbon pricing and energy security strategies, and evolving consumer behavior are considered in forecasting scenarios. Recent deal flows, partnerships, and technology innovations are incorporated to assess their impact on future market performance.

### Genetically Modified Vegetables Market Competitive Intelligence

The competitive landscape is mapped through OG Analysis' proprietary frameworks, profiling leading companies with details on business models, product portfolios, financial performance, and strategic initiatives. Key developments such as mergers & acquisitions, technology collaborations, investment inflows, and regional expansions are analyzed for their competitive impact. The report also identifies emerging players and innovative startups contributing to market disruption.

Regional insights highlight the most promising investment destinations, regulatory landscapes, and evolving partnerships across energy and industrial corridors.

### Countries Covered

North America — Genetically Modified Vegetables market data and outlook to 2034

United States

Canada

Mexico

Europe — Genetically Modified Vegetables market data and outlook to 2034

Germany

United Kingdom

France

Italy

Spain

BeNeLux

Russia

Sweden

Asia-Pacific — Genetically Modified Vegetables market data and outlook to 2034

China

Japan

India

South Korea

Australia

Indonesia

Malaysia

Vietnam

Middle East and Africa — Genetically Modified Vegetables market data and outlook to 2034

Saudi Arabia

South Africa

Iran

UAE

Egypt

South and Central America — Genetically Modified Vegetables market data and

outlook to 2034

Brazil

Argentina

Chile

Peru

*\* We can include data and analysis of additional countries on demand.*

### Research Methodology

This study combines primary inputs from industry experts across the Genetically Modified Vegetables value chain with secondary data from associations, government publications, trade databases, and company disclosures. Proprietary modeling techniques, including data triangulation, statistical correlation, and scenario planning, are applied to deliver reliable market sizing and forecasting.

### Key Questions Addressed

What is the current and forecast market size of the Genetically Modified Vegetables industry at global, regional, and country levels?

Which types, applications, and technologies present the highest growth potential?

How are supply chains adapting to geopolitical and economic shocks?

What role do policy frameworks, trade flows, and sustainability targets play in shaping demand?

Who are the leading players, and how are their strategies evolving in the face of global uncertainty?

Which regional “hotspots” and customer segments will outpace the market, and what go-to-market and partnership models best support entry and expansion?

Where are the most investable opportunities—across technology roadmaps, sustainability-linked innovation, and M&A—and what is the best segment to invest over the next 3–5 years?

## Your Key Takeaways from the Genetically Modified Vegetables Market Report

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

Impact of Russia-Ukraine, Israel-Palestine, and Hamas conflicts on Genetically Modified Vegetables trade, costs, and supply chains

Genetically Modified Vegetables market size, share, and outlook across 5 regions and 27 countries, 2023-2034

Genetically Modified Vegetables market size, CAGR, and market share of key products, applications, and end-user verticals, 2023-2034

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

Porter's Five Forces analysis, technological developments, and Genetically Modified Vegetables supply chain analysis

Genetically Modified Vegetables trade analysis, Genetically Modified Vegetables market price analysis, and Genetically Modified Vegetables supply/demand dynamics

Profiles of 5 leading companies—overview, key strategies, financials, and products

Latest Genetically Modified Vegetables market news and developments

## Additional Support

With the purchase of this report, you will receive

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## Contents

### 1. TABLE OF CONTENTS

- 1.1 List of Tables
- 1.2 List of Figures

### 2. GLOBAL GENETICALLY MODIFIED VEGETABLES MARKET SUMMARY, 2025

- 2.1 Genetically Modified Vegetables Industry Overview
  - 2.1.1 Global Genetically Modified Vegetables Market Revenues (In US\$ billion)
- 2.2 Genetically Modified Vegetables Market Scope
- 2.3 Research Methodology

### 3. GENETICALLY MODIFIED VEGETABLES MARKET INSIGHTS, 2024-2034

- 3.1 Genetically Modified Vegetables Market Drivers
- 3.2 Genetically Modified Vegetables Market Restraints
- 3.3 Genetically Modified Vegetables Market Opportunities
- 3.4 Genetically Modified Vegetables Market Challenges
- 3.5 Tariff Impact on Global Genetically Modified Vegetables Supply Chain Patterns

### 4. GENETICALLY MODIFIED VEGETABLES MARKET ANALYTICS

- 4.1 Genetically Modified Vegetables Market Size and Share, Key Products, 2025 Vs 2034
- 4.2 Genetically Modified Vegetables Market Size and Share, Dominant Applications, 2025 Vs 2034
- 4.3 Genetically Modified Vegetables Market Size and Share, Leading End Uses, 2025 Vs 2034
- 4.4 Genetically Modified Vegetables Market Size and Share, High Growth Countries, 2025 Vs 2034
- 4.5 Five Forces Analysis for Global Genetically Modified Vegetables Market
  - 4.5.1 Genetically Modified Vegetables Industry Attractiveness Index, 2025
  - 4.5.2 Genetically Modified Vegetables Supplier Intelligence
  - 4.5.3 Genetically Modified Vegetables Buyer Intelligence
  - 4.5.4 Genetically Modified Vegetables Competition Intelligence
  - 4.5.5 Genetically Modified Vegetables Product Alternatives and Substitutes Intelligence

#### 4.5.6 Genetically Modified Vegetables Market Entry Intelligence

### **5. GLOBAL GENETICALLY MODIFIED VEGETABLES MARKET STATISTICS – INDUSTRY REVENUE, MARKET SHARE, GROWTH TRENDS AND FORECAST BY SEGMENTS, TO 2034**

5.1 World Genetically Modified Vegetables Market Size, Potential and Growth Outlook, 2024- 2034 (\$ billion)

5.1 Global Genetically Modified Vegetables Sales Outlook and CAGR Growth By Type Of Modification, 2024- 2034 (\$ billion)

5.2 Global Genetically Modified Vegetables Sales Outlook and CAGR Growth By Crop, 2024- 2034 (\$ billion)

5.3 Global Genetically Modified Vegetables Sales Outlook and CAGR Growth By Technique, 2024- 2034 (\$ billion)

5.4 Global Genetically Modified Vegetables Sales Outlook and CAGR Growth By Trait, 2024- 2034 (\$ billion)

5.5 Global Genetically Modified Vegetables Sales Outlook and CAGR Growth By Application, 2024- 2034 (\$ billion)

5.6 Global Genetically Modified Vegetables Market Sales Outlook and Growth by Region, 2024- 2034 (\$ billion)

### **6. ASIA PACIFIC GENETICALLY MODIFIED VEGETABLES INDUSTRY STATISTICS – MARKET SIZE, SHARE, COMPETITION AND OUTLOOK**

6.1 Asia Pacific Genetically Modified Vegetables Market Insights, 2025

6.2 Asia Pacific Genetically Modified Vegetables Market Revenue Forecast By Type Of Modification, 2024- 2034 (USD billion)

6.3 Asia Pacific Genetically Modified Vegetables Market Revenue Forecast By Crop, 2024- 2034 (USD billion)

6.4 Asia Pacific Genetically Modified Vegetables Market Revenue Forecast By Technique, 2024- 2034 (USD billion)

6.5 Asia Pacific Genetically Modified Vegetables Market Revenue Forecast By Trait, 2024- 2034 (USD billion)

6.6 Asia Pacific Genetically Modified Vegetables Market Revenue Forecast By Application, 2024- 2034 (USD billion)

6.7 Asia Pacific Genetically Modified Vegetables Market Revenue Forecast by Country, 2024- 2034 (USD billion)

6.7.1 China Genetically Modified Vegetables Market Size, Opportunities, Growth 2024-2034

6.7.2 India Genetically Modified Vegetables Market Size, Opportunities, Growth 2024-2034

6.7.3 Japan Genetically Modified Vegetables Market Size, Opportunities, Growth 2024- 2034

6.7.4 Australia Genetically Modified Vegetables Market Size, Opportunities, Growth 2024- 2034

## **7. EUROPE GENETICALLY MODIFIED VEGETABLES MARKET DATA, PENETRATION, AND BUSINESS PROSPECTS TO 2034**

7.1 Europe Genetically Modified Vegetables Market Key Findings, 2025

7.2 Europe Genetically Modified Vegetables Market Size and Percentage Breakdown By Type Of Modification, 2024- 2034 (USD billion)

7.3 Europe Genetically Modified Vegetables Market Size and Percentage Breakdown By Crop, 2024- 2034 (USD billion)

7.4 Europe Genetically Modified Vegetables Market Size and Percentage Breakdown By Technique, 2024- 2034 (USD billion)

7.5 Europe Genetically Modified Vegetables Market Size and Percentage Breakdown By Trait, 2024- 2034 (USD billion)

7.6 Europe Genetically Modified Vegetables Market Size and Percentage Breakdown By Application, 2024- 2034 (USD billion)

7.7 Europe Genetically Modified Vegetables Market Size and Percentage Breakdown by Country, 2024- 2034 (USD billion)

7.7.1 Germany Genetically Modified Vegetables Market Size, Trends, Growth Outlook to 2034

7.7.2 United Kingdom Genetically Modified Vegetables Market Size, Trends, Growth Outlook to 2034

7.7.2 France Genetically Modified Vegetables Market Size, Trends, Growth Outlook to 2034

7.7.2 Italy Genetically Modified Vegetables Market Size, Trends, Growth Outlook to 2034

7.7.2 Spain Genetically Modified Vegetables Market Size, Trends, Growth Outlook to 2034

## **8. NORTH AMERICA GENETICALLY MODIFIED VEGETABLES MARKET SIZE, GROWTH TRENDS, AND FUTURE PROSPECTS TO 2034**

8.1 North America Snapshot, 2025

8.2 North America Genetically Modified Vegetables Market Analysis and Outlook By

Type Of Modification, 2024- 2034 (\$ billion)

8.3 North America Genetically Modified Vegetables Market Analysis and Outlook By Crop, 2024- 2034 (\$ billion)

8.4 North America Genetically Modified Vegetables Market Analysis and Outlook By Technique, 2024- 2034 (\$ billion)

8.5 North America Genetically Modified Vegetables Market Analysis and Outlook By Trait, 2024- 2034 (\$ billion)

8.6 North America Genetically Modified Vegetables Market Analysis and Outlook By Application, 2024- 2034 (\$ billion)

8.7 North America Genetically Modified Vegetables Market Analysis and Outlook by Country, 2024- 2034 (\$ billion)

8.7.1 United States Genetically Modified Vegetables Market Size, Share, Growth Trends and Forecast, 2024- 2034

8.7.1 Canada Genetically Modified Vegetables Market Size, Share, Growth Trends and Forecast, 2024- 2034

8.7.1 Mexico Genetically Modified Vegetables Market Size, Share, Growth Trends and Forecast, 2024- 2034

## **9. SOUTH AND CENTRAL AMERICA GENETICALLY MODIFIED VEGETABLES MARKET DRIVERS, CHALLENGES, AND FUTURE PROSPECTS**

9.1 Latin America Genetically Modified Vegetables Market Data, 2025

9.2 Latin America Genetically Modified Vegetables Market Future By Type Of Modification, 2024- 2034 (\$ billion)

9.3 Latin America Genetically Modified Vegetables Market Future By Crop, 2024- 2034 (\$ billion)

9.4 Latin America Genetically Modified Vegetables Market Future By Technique, 2024- 2034 (\$ billion)

9.5 Latin America Genetically Modified Vegetables Market Future By Trait, 2024- 2034 (\$ billion)

9.6 Latin America Genetically Modified Vegetables Market Future By Application, 2024- 2034 (\$ billion)

9.7 Latin America Genetically Modified Vegetables Market Future by Country, 2024- 2034 (\$ billion)

9.7.1 Brazil Genetically Modified Vegetables Market Size, Share and Opportunities to 2034

9.7.2 Argentina Genetically Modified Vegetables Market Size, Share and Opportunities to 2034

## **10. MIDDLE EAST AFRICA GENETICALLY MODIFIED VEGETABLES MARKET OUTLOOK AND GROWTH PROSPECTS**

10.1 Middle East Africa Overview, 2025

10.2 Middle East Africa Genetically Modified Vegetables Market Statistics By Type Of Modification, 2024- 2034 (USD billion)

10.3 Middle East Africa Genetically Modified Vegetables Market Statistics By Crop, 2024- 2034 (USD billion)

10.4 Middle East Africa Genetically Modified Vegetables Market Statistics By Technique, 2024- 2034 (USD billion)

10.5 Middle East Africa Genetically Modified Vegetables Market Statistics By Trait, 2024- 2034 (USD billion)

10.6 Middle East Africa Genetically Modified Vegetables Market Statistics By Application, 2024- 2034 (USD billion)

10.7 Middle East Africa Genetically Modified Vegetables Market Statistics by Country, 2024- 2034 (USD billion)

10.7.1 Middle East Genetically Modified Vegetables Market Value, Trends, Growth Forecasts to 2034

10.7.2 Africa Genetically Modified Vegetables Market Value, Trends, Growth Forecasts to 2034

## **11. GENETICALLY MODIFIED VEGETABLES MARKET STRUCTURE AND COMPETITIVE LANDSCAPE**

11.1 Key Companies in Genetically Modified Vegetables Industry

11.2 Genetically Modified Vegetables Business Overview

11.3 Genetically Modified Vegetables Product Portfolio Analysis

11.4 Financial Analysis

11.5 SWOT Analysis

## **12 APPENDIX**

12.1 Global Genetically Modified Vegetables Market Volume (Tons)

12.1 Global Genetically Modified Vegetables Trade and Price Analysis

12.2 Genetically Modified Vegetables Parent Market and Other Relevant Analysis

12.3 Publisher Expertise

12.2 Genetically Modified Vegetables Industry Report Sources and Methodology

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