

Molecular Breeding Market Forecasts to 2032 – Global Analysis By Crop Type (Cereals & Grains, Oilseeds & Pulses, Fruits & Vegetables, Forage & Fodder, and Other Crop Types), Technology, Application, End User and By Geography

<https://marketpublishers.com/r/MA2E74DC3108EN.html>

Date: January 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: MA2E74DC3108EN

Abstracts

According to Statistics MRC, the Global Molecular Breeding Market is accounted for \$9.87 billion in 2025 and is expected to reach \$33.97 billion by 2032 growing at a CAGR of 19.3% during the forecast period. Molecular breeding is an advanced plant and animal improvement approach that uses molecular biology tools to identify, select, and combine desirable genetic traits with greater precision. It integrates techniques such as marker-assisted selection, genomic selection, and DNA sequencing to accelerate traditional breeding processes. By targeting specific genes linked to yield, quality, disease resistance, and stress tolerance, molecular breeding reduces breeding time, improves efficiency, and enhances the development of superior varieties suited to diverse environmental and agricultural conditions.

Market Dynamics:

Driver:

Demand for climate-resilient & sustainable agriculture

Farmers and governments are increasingly prioritizing sustainable agricultural systems to ensure long-term food security. Molecular breeding enables the rapid development of climate-resilient crops by precisely identifying and selecting desirable traits. Rising awareness about resource-efficient farming is encouraging adoption of advanced breeding approaches. Public and private investments in sustainable agriculture

research are further strengthening market momentum. The push to reduce chemical inputs is also driving interest in genetically resilient cultivars. Together, these factors are significantly expanding the global molecular breeding market across diverse agro-climatic regions.

Restraint:

High initial costs & infrastructure needs

The need for sophisticated infrastructure such as genotyping platforms and data analytics tools raises operational costs. Small and medium-sized breeding programs often face difficulties in adopting these technologies due to limited financial resources. In developing regions, inadequate research facilities further constrain large-scale implementation. The high cost of technology licensing and intellectual property adds to the financial burden. Long development timelines can delay returns on investment for market players. These cost-related challenges continue to limit broader adoption, particularly among resource-constrained institutions.

Opportunity:

Biofortified & nutritionally enhanced crops

Molecular breeding offers precise tools to improve micronutrient content such as iron, zinc, and vitamins in staple crops. Biofortified varieties can address hidden hunger without altering traditional dietary habits. Governments and international organizations are supporting nutrition-focused breeding initiatives to improve public health outcomes. Advances in genomics are enabling faster identification of genes linked to nutritional traits. Collaboration between research institutes and seed companies is accelerating commercialization of enhanced crops. This growing focus on nutrition presents significant growth opportunities for the molecular breeding market.

Threat:

Competition from alternative breeding tech

Techniques like CRISPR offer faster trait development with greater precision in certain applications. Some breeders are shifting investments toward these next-generation tools to shorten product development cycles. Regulatory uncertainty around different technologies can influence adoption patterns across regions. The rapid pace of

innovation increases pressure on molecular breeding providers to continuously upgrade capabilities. Limited differentiation between breeding platforms may intensify competitive rivalry. As alternative technologies gain traction, they could challenge the long-term dominance of molecular breeding solutions.

Covid-19 Impact:

The COVID-19 pandemic disrupted agricultural research activities and delayed breeding trials due to restricted field access. Supply chain interruptions affected the availability of laboratory reagents and breeding materials. However, the crisis underscored the importance of resilient food systems and accelerated interest in advanced breeding technologies. Research organizations increasingly adopted digital tools for data analysis and remote collaboration. Funding priorities shifted toward ensuring crop productivity and food security during uncertain times. Seed companies focused on fast-tracking resilient and high-yield varieties. In the post-pandemic period, molecular breeding is gaining renewed attention as a strategic tool for agricultural resilience.

The yield improvement segment is expected to be the largest during the forecast period

The yield improvement segment is expected to account for the largest market share during the forecast period, due to enhancing crop productivity remains a primary objective for farmers facing land constraints and growing food demand. Molecular markers enable breeders to efficiently select high-yield traits with greater accuracy. These techniques reduce the time required to develop superior varieties compared to conventional methods. Governments are strongly supporting yield-focused breeding to strengthen food self-sufficiency. High-yield varieties also improve farm profitability, encouraging widespread adoption.

The biotechnology firms segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the biotechnology firms segment is predicted to witness the highest growth rate, driven by its direct impact on agricultural output and economic returns. Increasing population levels are placing constant pressure on global crop production systems. Molecular breeding helps unlock genetic potential that enhances productivity under varying conditions. Farmers prefer yield-enhancing varieties that offer consistent performance across seasons. Seed companies prioritize this segment due to faster market acceptance and scalability. Public breeding programs are also focusing on yield stability in stress-prone environments.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, due to these companies are at the forefront of integrating genomics, bioinformatics, and molecular tools. Strong R&D capabilities enable them to rapidly innovate and commercialize new breeding solutions. Strategic partnerships with agricultural institutes are expanding their technology reach. Increased venture capital funding is supporting the scale-up of biotech-driven breeding platforms. Their ability to offer customized trait solutions enhances competitive advantage.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, owing to their strong focus on innovation and technology adoption. These players leverage advanced molecular techniques to reduce breeding cycles and improve accuracy. Growing demand for trait-specific and high-performance crops favors biotech-led solutions. Supportive intellectual property frameworks are encouraging private sector participation. Collaborations with seed companies are accelerating market penetration. Expansion into emerging economies is opening new revenue streams.

Key players in the market

Some of the key players in Molecular Breeding Market include Bayer AG, KeyGene, Corteva Ag, DanBred, Syngenta, Intertek, KWS SAAT, LemnaTec, Limagrain, SGS SA, Eurofins, LGC Limited, Illumina, Inc., Charles Ri, and Thermo Fi.

Key Developments:

In October 2025, SALIC and Syngenta Signed Agreement to Explore Joint Agriculture Projects that Enhance Food Security in Saudi Arabia and Around the World. This collaboration with Syngenta reflects SALIC's commitment to innovation, sustainability, and global partnerships. Together, we aim to help transform agriculture by integrating technology, knowledge, and responsible practices empowering farmers, conserving resources, and building resilient food systems that strengthen Saudi Arabia's food security and support future generations worldwide.

In August 2025, DuPont de Nemours, Inc., and Corteva, Inc. announced a settlement to comprehensively resolve all pending environmental and other claims by the State of

New Jersey against the Companies in various litigation matters and other state directives. The Settlement will resolve all legacy contamination claims related to the companies' current and former operating sites (Chambers Works, Parlin, Pompton Lakes and Repauno) and claims of statewide PFAS contamination unrelated to those sites, including from the use of aqueous film forming foam.

Crop Types Covered:

Cereals & Grains

Oilseeds & Pulses

Fruits & Vegetables

Forage & Fodder

Other Crop Types

Technologies Covered:

Marker-Assisted Selection (MAS)

Marker-Assisted Backcrossing (MABC)

Genomic Selection

Transgenic Breeding

Gene Editing

Molecular Marker Platforms

Applications Covered:

Drought Tolerance

Disease Resistance

Pest Resistance

Yield Improvement

Quality & Nutritional Traits

Abiotic Stress Resistance

Other Applications

End Users Covered:

Seed Companies

Biotechnology Firms

Research & Academic Institutes

Government & Public Sector

Contract Research Organizations (CROs)

Other End Users

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & 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 2024, 2025, 2026, 2028, and 2032
- 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

2 PREFACE

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
 - 2.4.1 Data Mining
 - 2.4.2 Data Analysis
 - 2.4.3 Data Validation
 - 2.4.4 Research Approach
- 2.5 Research Sources
 - 2.5.1 Primary Research Sources
 - 2.5.2 Secondary Research Sources
 - 2.5.3 Assumptions

3 MARKET TREND ANALYSIS

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Technology Analysis
- 3.7 Application Analysis
- 3.8 End User Analysis
- 3.9 Emerging Markets
- 3.10 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

5 GLOBAL MOLECULAR BREEDING MARKET, BY CROP TYPE

- 5.1 Introduction
- 5.2 Cereals & Grains
 - 5.2.1 Wheat
 - 5.2.2 Rice
 - 5.2.3 Maize
- 5.3 Oilseeds & Pulses
 - 5.3.1 Soybean
 - 5.3.2 Canola
 - 5.3.3 Lentils/Beans
- 5.4 Fruits & Vegetables
- 5.5 Forage & Fodder
- 5.6 Other Crop Types

6 GLOBAL MOLECULAR BREEDING MARKET, BY TECHNOLOGY

- 6.1 Introduction
- 6.2 Marker-Assisted Selection (MAS)
- 6.3 Marker-Assisted Backcrossing (MABC)
- 6.4 Genomic Selection
- 6.5 Transgenic Breeding
- 6.6 Gene Editing
- 6.7 Molecular Marker Platforms

7 GLOBAL MOLECULAR BREEDING MARKET, BY APPLICATION

- 7.1 Introduction
- 7.2 Drought Tolerance
- 7.3 Disease Resistance
- 7.4 Pest Resistance
- 7.5 Yield Improvement
- 7.6 Quality & Nutritional Traits
- 7.7 Abiotic Stress Resistance
- 7.8 Other Applications

8 GLOBAL MOLECULAR BREEDING MARKET, BY END USER

- 8.1 Introduction
- 8.2 Seed Companies
- 8.3 Biotechnology Firms
- 8.4 Research & Academic Institutes
- 8.5 Government & Public Sector
- 8.6 Contract Research Organizations (CROs)
- 8.7 Other End Users

9 GLOBAL MOLECULAR BREEDING MARKET, BY GEOGRAPHY

- 9.1 Introduction
- 9.2 North America
 - 9.2.1 US
 - 9.2.2 Canada
 - 9.2.3 Mexico
- 9.3 Europe
 - 9.3.1 Germany
 - 9.3.2 UK
 - 9.3.3 Italy
 - 9.3.4 France
 - 9.3.5 Spain
 - 9.3.6 Rest of Europe
- 9.4 Asia Pacific
 - 9.4.1 Japan
 - 9.4.2 China
 - 9.4.3 India
 - 9.4.4 Australia
 - 9.4.5 New Zealand
 - 9.4.6 South Korea
 - 9.4.7 Rest of Asia Pacific
- 9.5 South America
 - 9.5.1 Argentina
 - 9.5.2 Brazil
 - 9.5.3 Chile
 - 9.5.4 Rest of South America
- 9.6 Middle East & Africa
 - 9.6.1 Saudi Arabia
 - 9.6.2 UAE
 - 9.6.3 Qatar

9.6.4 South Africa

9.6.5 Rest of Middle East & Africa

10 KEY DEVELOPMENTS

10.1 Agreements, Partnerships, Collaborations and Joint Ventures

10.2 Acquisitions & Mergers

10.3 New Product Launch

10.4 Expansions

10.5 Other Key Strategies

11 COMPANY PROFILING

11.1 Bayer AG

11.2 KeyGene N.V.

11.3 Corteva Agriscience

11.4 DanBred P/S

11.5 Syngenta Group

11.6 Intertek Group plc

11.7 KWS SAAT SE

11.8 LemnaTec GmbH

11.9 Limagrain

11.10 SGS SA

11.11 Eurofins Scientific SE

11.12 LGC Limited

11.13 Illumina, Inc.

11.14 Charles River Laboratories International, Inc.

11.15 Thermo Fisher Scientific Inc.

List Of Tables

LIST OF TABLES

- Table 1 Global Molecular Breeding Market Outlook, By Region (2024-2032) (\$MN)
- Table 2 Global Molecular Breeding Market Outlook, By Crop Type (2024-2032) (\$MN)
- Table 3 Global Molecular Breeding Market Outlook, By Cereals & Grains (2024-2032) (\$MN)
- Table 4 Global Molecular Breeding Market Outlook, By Wheat (2024-2032) (\$MN)
- Table 5 Global Molecular Breeding Market Outlook, By Rice (2024-2032) (\$MN)
- Table 6 Global Molecular Breeding Market Outlook, By Maize (2024-2032) (\$MN)
- Table 7 Global Molecular Breeding Market Outlook, By Oilseeds & Pulses (2024-2032) (\$MN)
- Table 8 Global Molecular Breeding Market Outlook, By Soybean (2024-2032) (\$MN)
- Table 9 Global Molecular Breeding Market Outlook, By Canola (2024-2032) (\$MN)
- Table 10 Global Molecular Breeding Market Outlook, By Lentils/Beans (2024-2032) (\$MN)
- Table 11 Global Molecular Breeding Market Outlook, By Fruits & Vegetables (2024-2032) (\$MN)
- Table 12 Global Molecular Breeding Market Outlook, By Forage & Fodder (2024-2032) (\$MN)
- Table 13 Global Molecular Breeding Market Outlook, By Other Crop Types (2024-2032) (\$MN)
- Table 14 Global Molecular Breeding Market Outlook, By Technology (2024-2032) (\$MN)
- Table 15 Global Molecular Breeding Market Outlook, By Marker-Assisted Selection (MAS) (2024-2032) (\$MN)
- Table 16 Global Molecular Breeding Market Outlook, By Marker-Assisted Backcrossing (MABC) (2024-2032) (\$MN)
- Table 17 Global Molecular Breeding Market Outlook, By Genomic Selection (2024-2032) (\$MN)
- Table 18 Global Molecular Breeding Market Outlook, By Transgenic Breeding (2024-2032) (\$MN)
- Table 19 Global Molecular Breeding Market Outlook, By Gene Editing (2024-2032) (\$MN)
- Table 20 Global Molecular Breeding Market Outlook, By Molecular Marker Platforms (2024-2032) (\$MN)
- Table 21 Global Molecular Breeding Market Outlook, By Application (2024-2032) (\$MN)
- Table 22 Global Molecular Breeding Market Outlook, By Drought Tolerance (2024-2032) (\$MN)

Table 23 Global Molecular Breeding Market Outlook, By Disease Resistance (2024-2032) (\$MN)

Table 24 Global Molecular Breeding Market Outlook, By Pest Resistance (2024-2032) (\$MN)

Table 25 Global Molecular Breeding Market Outlook, By Yield Improvement (2024-2032) (\$MN)

Table 26 Global Molecular Breeding Market Outlook, By Quality & Nutritional Traits (2024-2032) (\$MN)

Table 27 Global Molecular Breeding Market Outlook, By Abiotic Stress Resistance (2024-2032) (\$MN)

Table 28 Global Molecular Breeding Market Outlook, By Other Applications (2024-2032) (\$MN)

Table 29 Global Molecular Breeding Market Outlook, By End User (2024-2032) (\$MN)

Table 30 Global Molecular Breeding Market Outlook, By Seed Companies (2024-2032) (\$MN)

Table 31 Global Molecular Breeding Market Outlook, By Biotechnology Firms (2024-2032) (\$MN)

Table 32 Global Molecular Breeding Market Outlook, By Research & Academic Institutes (2024-2032) (\$MN)

Table 33 Global Molecular Breeding Market Outlook, By Government & Public Sector (2024-2032) (\$MN)

Table 34 Global Molecular Breeding Market Outlook, By Contract Research Organizations (CROs) (2024-2032) (\$MN)

Table 35 Global Molecular Breeding Market Outlook, By Other End Users (2024-2032) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

I would like to order

Product name: Molecular Breeding Market Forecasts to 2032 – Global Analysis By Crop Type (Cereals & Grains, Oilseeds & Pulses, Fruits & Vegetables, Forage & Fodder, and Other Crop Types), Technology, Application, End User and By Geography

Product link: <https://marketpublishers.com/r/MA2E74DC3108EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/MA2E74DC3108EN.html>