

Plant Biotechnology Equipment Market Outlook 2026-2034: Market Share, and Growth Analysis By Type (Sensors Modules, Imaging Devices, Automated System, Drones, LED Lighting, Portable Devices), By Application (Plant Research, Breeding, Product Development, Quality Assessment, Others), By End- User

<https://marketpublishers.com/r/P71E7D946308EN.html>

Date: November 2025

Pages: 160

Price: US\$ 3,950.00 (Single User License)

ID: P71E7D946308EN

Abstracts

The Plant Biotechnology Equipment Market is valued at USD 14.26 billion in 2025 and is projected to grow at a CAGR of 11.2% to reach USD 37.07 billion by 2034.

Plant Biotechnology Equipment Market

The plant biotechnology equipment market spans instruments, platforms, and consumables that enable genetic improvement, propagation, and rapid phenotyping of crops and specialty plants. Core end-uses include seed and trait discovery programs, commercial micropropagation and horticulture, plant health diagnostics, and academic/government research. The toolkit ranges from genome editing and transformation systems (CRISPR delivery, Agrobacterium/biolytic), molecular biology workflows (PCR/qPCR/dPCR, next-gen sequencing, sample prep), tissue culture bioreactors and cleanroom support, controlled-environment growth chambers and LED lighting, high-throughput phenotyping (imaging, hyperspectral, LiDAR), and data/automation stacks (liquid handlers, robotics, LIMS/bioinformatics). Key trends include the mainstreaming of gene editing; “speed breeding” and digital phenotyping; growing demand for climate-resilient traits; lab automation and miniaturization; integration of AI/ML across genotype-to-phenotype pipelines; and sustainability pressure favoring resource-efficient equipment. Growth is underpinned by food security

needs, climate variability, supply chain risks in seed and horticulture, and public/private funding for ag-innovation. The competitive landscape combines diversified life-science instrument leaders (spanning sequencing, PCR, bioprocess, and imaging) and plant-focused specialists in phenotyping, growth environments, transformation, and tissue culture. Differentiation is shifting from standalone instruments to integrated, validated workflows, software analytics, and service agreements that reduce time-to-result. Procurement increasingly favors bundled solutions, standardized protocols, and reliable after-sales support, with consumables and service contracts driving recurring revenues. Barriers include regulatory complexity, data integration challenges, biosafety requirements, and the need for skilled operators - creating opportunities for turnkey systems, cloud-enabled analytics, and training.

Plant Biotechnology Equipment Market Key Insights

Shift from transgenics to gene editing Gene editing is now the default innovation pathway in plant R&D because it compresses development cycles and can sidestep some regulatory burdens. Equipment demand tilts toward CRISPR delivery modules, high-fidelity PCR/dPCR, and targeted sequencing. Vendors that package editing reagents with validated instruments and protocols see faster adoption. Service models (design-edit-validate) are emerging around platform ecosystems.

Kits, consumables, and services stabilize revenues While big-ticket instruments anchor labs, the spend concentrates over time in enzymes, media, plastics, and capture kits - plus calibration, qualification, and training. Suppliers with reliable QC, cold-chain logistics, and regional inventory win share. Framework agreements and multi-year service contracts reduce switching, creating defensible, recurring revenue pools.

High-throughput phenotyping moves from greenhouse to field Imaging (RGB, multispectral, hyperspectral), thermal, and LiDAR - on gantries, drones, and carts - connect traits to performance at scale. Demand favors interoperable sensors, standardized data formats, and analytics that link phenotypes to genomic markers. Integrations with growth chambers enable “closed-loop” selection, trimming cycles in speed-breeding programs.

Automation addresses labor and reproducibility constraints Benchtop liquid handlers, colony pickers, and automated tissue culture lines reduce human variability and increase throughput. Buyers value validated workflows over raw

robot specs. Vendors that ship pre-configured methods for DNA/RNA extraction, library prep, and media dispensing shorten onboarding and improve ROI.

Controlled-environment agriculture (CEA) elevates growth hardware Precision LED spectra, uniform airflow, and environmental stability are critical to phenotyping accuracy and micropropagation yields. Growth rooms and chambers with tight control of VPD, CO₂, and photoperiod, plus remote telemetry, are preferred. Energy efficiency and heat management increasingly influence purchase decisions and facility design.

Data is the bottleneck - software is the unlock Labs wrestle with image volumes, multi-omics files, and versioned protocols. Demand rises for LIMS/ELN integration, FAIR data practices, and AI models that predict trait performance. Vendors bundling pipeline software, API access, and secure cloud storage become strategic partners rather than equipment suppliers.

Regulatory readiness and biosafety drive specification Compliance with biosafety, traceability, and documentation standards influences equipment layouts and materials (e.g., cleanroom-rated plastics, ISO-compatible processes). Systems with audit trails, electronic signatures, and validated methods reduce compliance risk and speed certification, especially for export-oriented seed producers.

Tissue culture renaissance in horticulture and forestry Virus-free planting material and uniform clones push demand for media prep, bioreactors, and contamination-resistant workflows. Modular clean benches, pre-sterilized disposables, and single-use bioreactors improve scalability. Vendors offering contamination diagnostics and rapid sterility testing add measurable value.

Integration beats best-of-breed for many buyers Procurement is consolidating around single-throat-to-choke solutions: sequencers matched to library preps, chambers tied to phenotyping rails, and analytics pre-mapped to instruments. Total cost of ownership - installation, uptime, calibration - often outweighs marginal performance specs. Turnkey bundles and training accelerate deployment across multi-site networks.

Emerging adjacencies: microbiome and bioinputs Plant-microbe research and biological crop inputs pull through metagenomics, flow cytometry, and fermentation pilot tools. Labs need cross-domain platforms that can handle root

exudate analytics, microbial libraries, and plant challenge assays. Vendors who bridge plant and microbial workflows gain share in next-gen biocontrol and biofertility programs.

Plant Biotechnology Equipment Market Regional Analysis

North America

Home to leading seed companies, deep university–industry collaboration, and a mature venture ecosystem, North America prioritizes integrated editing-to-phenotyping pipelines and automation. Evolving regulatory clarity around gene editing supports investment in pilot-to-commercial transitions. Buyers emphasize enterprise-grade software, cybersecurity, and service SLAs across multi-state sites. Government and state-level grants sustain academic core facilities, while greenhouse and field phenotyping platforms expand across land-grant networks.

Europe

Europe combines world-class research infrastructures with a more cautious stance on crop biotechnology adoption, shaping demand toward research-grade equipment, traceability, and documentation. Public funding emphasizes sustainability, biodiversity, and climate resilience, boosting phenotyping, imaging, and controlled-environment systems. Procurement frequently requires compliance with stringent quality and audit frameworks. Growth opportunities cluster around specialty crops, seed quality analytics, and pathogen diagnostics for plant health.

Asia-Pacific

APAC features large-scale public programs in crop improvement, rapid urbanization driving CEA, and manufacturing depth for lab components. China, India, Japan, and Australia anchor demand for sequencing, PCR, tissue culture, and speed-breeding infrastructure. Regional buyers value cost-performance balance, local service coverage, and scalable workflows. Horticulture and forestry micropropagation, plus drone-based field phenotyping, are expanding quickly alongside talent development and incubator ecosystems.

Middle East & Africa

Food security, water scarcity, and heat stress elevate demand for climate-resilient trait discovery, seed health testing, and controlled-environment growth facilities. Investments concentrate in turnkey greenhouses, growth chambers, and tissue culture labs for high-value crops. Donor-backed research centers and government initiatives drive initial deployments, with training and maintenance contracts critical to sustaining operations. Robust remote monitoring and low-maintenance designs are favored.

South & Central America

Strong agricultural exporters and progressive biotech adoption in several countries create a receptive market for editing, transformation, and field phenotyping toolchains. Seed companies and contract research hubs invest in drone- and tractor-mounted imaging, pathology diagnostics, and regulated data capture. Buyers value ruggedized equipment for large field trials and reliable cold-chain for consumables. Partnerships with local distributors and service providers are often decisive in vendor selection.

Plant Biotechnology Equipment Market Segmentation

By Type

Sensors Modules

Imaging Devices

Automated System

Drones

LED Lighting

Portable Devices

By Application

Plant Research

Breeding

Product Development

Quality Assessment

Others

By End-User

Greenhouse

Field

Laboratory

Key Market players

ThermoFisherScientific, TecanGroup, Illumina, KeyGeneN.V., LabRepCo, GeneQInc., LGCLimited, LemnaTecGmbH, PhotonSystemsInstruments, QubitSystemsInc., HeinzWalzGmbH, EvogeneLtd., BayerAG, BASFSE, SyngentaAG.

Plant Biotechnology Equipment Market Analytics

The report employs rigorous tools, including Porter's Five Forces, value chain mapping, and scenario-based modelling, 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 behaviour are considered in forecasting scenarios. Recent deal flows, partnerships, and technology innovations are incorporated to assess their impact on future market performance.

Plant Biotechnology Equipment 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 — Plant Biotechnology Equipment market data and outlook to 2034

United States

Canada

Mexico

Europe — Plant Biotechnology Equipment market data and outlook to 2034

Germany

United Kingdom

France

Italy

Spain

BeNeLux

Russia

Sweden

Asia-Pacific — Plant Biotechnology Equipment market data and outlook to 2034

China

Japan

India

South Korea

Australia

Indonesia

Malaysia

Vietnam

Middle East and Africa — Plant Biotechnology Equipment market data and outlook to 2034

Saudi Arabia

South Africa

Iran

UAE

Egypt

South and Central America — Plant Biotechnology Equipment 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 Plant Biotechnology Equipment 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 Plant Biotechnology Equipment 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 Plant Biotechnology Equipment Market Report

Global Plant Biotechnology Equipment market size and growth projections (CAGR), 2024-2034

Impact of Russia-Ukraine, Israel-Palestine, and Hamas conflicts on Plant Biotechnology Equipment trade, costs, and supply chains

Plant Biotechnology Equipment market size, share, and outlook across 5 regions and 27 countries, 2023-2034

Plant Biotechnology Equipment market size, CAGR, and market share of key products, applications, and end-user verticals, 2023-2034

Short- and long-term Plant Biotechnology Equipment market trends, drivers, restraints, and opportunities

Porter's Five Forces analysis, technological developments, and Plant Biotechnology Equipment supply chain analysis

Plant Biotechnology Equipment trade analysis, Plant Biotechnology Equipment market price analysis, and Plant Biotechnology Equipment supply/demand dynamics

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

Latest Plant Biotechnology Equipment market news and developments

Additional Support

With the purchase of this report, you will receive

An updated PDF report and an MS Excel data workbook containing all market tables and figures for easy analysis.

7-day post-sale analyst support for clarifications and in-scope supplementary data, ensuring the deliverable aligns precisely with your requirements.

Complimentary report update to incorporate the latest available data and the impact of recent market developments.

* The updated report will be delivered within 3 working days

Contents

1. TABLE OF CONTENTS

- 1.1 List of Tables
- 1.2 List of Figures

2. GLOBAL PLANT BIOTECHNOLOGY EQUIPMENT MARKET SUMMARY, 2025

- 2.1 Plant Biotechnology Equipment Industry Overview
 - 2.1.1 Global Plant Biotechnology Equipment Market Revenues (In US\$ billion)
- 2.2 Plant Biotechnology Equipment Market Scope
- 2.3 Research Methodology

3. PLANT BIOTECHNOLOGY EQUIPMENT MARKET INSIGHTS, 2024-2034

- 3.1 Plant Biotechnology Equipment Market Drivers
- 3.2 Plant Biotechnology Equipment Market Restraints
- 3.3 Plant Biotechnology Equipment Market Opportunities
- 3.4 Plant Biotechnology Equipment Market Challenges
- 3.5 Tariff Impact on Global Plant Biotechnology Equipment Supply Chain Patterns

4. PLANT BIOTECHNOLOGY EQUIPMENT MARKET ANALYTICS

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

5. GLOBAL PLANT BIOTECHNOLOGY EQUIPMENT MARKET STATISTICS – INDUSTRY REVENUE, MARKET SHARE, GROWTH TRENDS AND FORECAST BY SEGMENTS, TO 2034

5.1 World Plant Biotechnology Equipment Market Size, Potential and Growth Outlook, 2024- 2034 (\$ billion)

5.1 Global Plant Biotechnology Equipment Sales Outlook and CAGR Growth By Type, 2024- 2034 (\$ billion)

5.2 Global Plant Biotechnology Equipment Sales Outlook and CAGR Growth By Application, 2024- 2034 (\$ billion)

5.3 Global Plant Biotechnology Equipment Sales Outlook and CAGR Growth By End-User, 2024- 2034 (\$ billion)

5.4 Global Plant Biotechnology Equipment Market Sales Outlook and Growth by Region, 2024- 2034 (\$ billion)

6. ASIA PACIFIC PLANT BIOTECHNOLOGY EQUIPMENT INDUSTRY STATISTICS – MARKET SIZE, SHARE, COMPETITION AND OUTLOOK

6.1 Asia Pacific Plant Biotechnology Equipment Market Insights, 2025

6.2 Asia Pacific Plant Biotechnology Equipment Market Revenue Forecast By Type, 2024- 2034 (USD billion)

6.3 Asia Pacific Plant Biotechnology Equipment Market Revenue Forecast By Application, 2024- 2034 (USD billion)

6.4 Asia Pacific Plant Biotechnology Equipment Market Revenue Forecast By End-User, 2024- 2034 (USD billion)

6.5 Asia Pacific Plant Biotechnology Equipment Market Revenue Forecast by Country, 2024- 2034 (USD billion)

6.5.1 China Plant Biotechnology Equipment Market Size, Opportunities, Growth 2024-2034

6.5.2 India Plant Biotechnology Equipment Market Size, Opportunities, Growth 2024-2034

6.5.3 Japan Plant Biotechnology Equipment Market Size, Opportunities, Growth 2024-2034

6.5.4 Australia Plant Biotechnology Equipment Market Size, Opportunities, Growth 2024- 2034

7. EUROPE PLANT BIOTECHNOLOGY EQUIPMENT MARKET DATA, PENETRATION, AND BUSINESS PROSPECTS TO 2034

7.1 Europe Plant Biotechnology Equipment Market Key Findings, 2025

7.2 Europe Plant Biotechnology Equipment Market Size and Percentage Breakdown By Type, 2024- 2034 (USD billion)

7.3 Europe Plant Biotechnology Equipment Market Size and Percentage Breakdown By Application, 2024- 2034 (USD billion)

7.4 Europe Plant Biotechnology Equipment Market Size and Percentage Breakdown By End-User, 2024- 2034 (USD billion)

7.5 Europe Plant Biotechnology Equipment Market Size and Percentage Breakdown by Country, 2024- 2034 (USD billion)

7.5.1 Germany Plant Biotechnology Equipment Market Size, Trends, Growth Outlook to 2034

7.5.2 United Kingdom Plant Biotechnology Equipment Market Size, Trends, Growth Outlook to 2034

7.5.2 France Plant Biotechnology Equipment Market Size, Trends, Growth Outlook to 2034

7.5.2 Italy Plant Biotechnology Equipment Market Size, Trends, Growth Outlook to 2034

7.5.2 Spain Plant Biotechnology Equipment Market Size, Trends, Growth Outlook to 2034

8. NORTH AMERICA PLANT BIOTECHNOLOGY EQUIPMENT MARKET SIZE, GROWTH TRENDS, AND FUTURE PROSPECTS TO 2034

8.1 North America Snapshot, 2025

8.2 North America Plant Biotechnology Equipment Market Analysis and Outlook By Type, 2024- 2034 (\$ billion)

8.3 North America Plant Biotechnology Equipment Market Analysis and Outlook By Application, 2024- 2034 (\$ billion)

8.4 North America Plant Biotechnology Equipment Market Analysis and Outlook By End-User, 2024- 2034 (\$ billion)

8.5 North America Plant Biotechnology Equipment Market Analysis and Outlook by Country, 2024- 2034 (\$ billion)

8.5.1 United States Plant Biotechnology Equipment Market Size, Share, Growth Trends and Forecast, 2024- 2034

8.5.1 Canada Plant Biotechnology Equipment Market Size, Share, Growth Trends and Forecast, 2024- 2034

8.5.1 Mexico Plant Biotechnology Equipment Market Size, Share, Growth Trends and Forecast, 2024- 2034

9. SOUTH AND CENTRAL AMERICA PLANT BIOTECHNOLOGY EQUIPMENT MARKET DRIVERS, CHALLENGES, AND FUTURE PROSPECTS

9.1 Latin America Plant Biotechnology Equipment Market Data, 2025

9.2 Latin America Plant Biotechnology Equipment Market Future By Type, 2024- 2034 (\$ billion)

9.3 Latin America Plant Biotechnology Equipment Market Future By Application, 2024-2034 (\$ billion)

9.4 Latin America Plant Biotechnology Equipment Market Future By End-User, 2024-2034 (\$ billion)

9.5 Latin America Plant Biotechnology Equipment Market Future by Country, 2024-2034 (\$ billion)

9.5.1 Brazil Plant Biotechnology Equipment Market Size, Share and Opportunities to 2034

9.5.2 Argentina Plant Biotechnology Equipment Market Size, Share and Opportunities to 2034

10. MIDDLE EAST AFRICA PLANT BIOTECHNOLOGY EQUIPMENT MARKET OUTLOOK AND GROWTH PROSPECTS

10.1 Middle East Africa Overview, 2025

10.2 Middle East Africa Plant Biotechnology Equipment Market Statistics By Type, 2024- 2034 (USD billion)

10.3 Middle East Africa Plant Biotechnology Equipment Market Statistics By Application, 2024- 2034 (USD billion)

10.4 Middle East Africa Plant Biotechnology Equipment Market Statistics By End-User, 2024- 2034 (USD billion)

10.5 Middle East Africa Plant Biotechnology Equipment Market Statistics by Country, 2024- 2034 (USD billion)

10.5.1 Middle East Plant Biotechnology Equipment Market Value, Trends, Growth Forecasts to 2034

10.5.2 Africa Plant Biotechnology Equipment Market Value, Trends, Growth Forecasts to 2034

11. PLANT BIOTECHNOLOGY EQUIPMENT MARKET STRUCTURE AND COMPETITIVE LANDSCAPE

11.1 Key Companies in Plant Biotechnology Equipment Industry

- 11.2 Plant Biotechnology Equipment Business Overview
- 11.3 Plant Biotechnology Equipment Product Portfolio Analysis
- 11.4 Financial Analysis
- 11.5 SWOT Analysis

12 APPENDIX

- 12.1 Global Plant Biotechnology Equipment Market Volume (Tons)
- 12.1 Global Plant Biotechnology Equipment Trade and Price Analysis
- 12.2 Plant Biotechnology Equipment Parent Market and Other Relevant Analysis
- 12.3 Publisher Expertise
- 12.2 Plant Biotechnology Equipment Industry Report Sources and MethodologyOGAMV25R1584

I would like to order

Product name: Plant Biotechnology Equipment Market Outlook 2026-2034: Market Share, and Growth Analysis By Type (Sensors Modules, Imaging Devices, Automated System, Drones, LED Lighting, Portable Devices), By Application (Plant Research, Breeding, Product Development, Quality Assessment, Others), By End-User

Product link: <https://marketpublishers.com/r/P71E7D946308EN.html>

Price: US\$ 3,950.00 (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/P71E7D946308EN.html>