

Farm Robotics & Automation Market Forecasts to 2032 – Global Analysis By Robot Type (Autonomous Tractors, Robotic Harvesters, Drone Systems, Milking Robots and Other Robot Types), Offering, Farm Size, Application and By Geography

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Abstracts

According to Statistics MRC, the Global Farm Robotics & Automation Market is accounted for \$18.5 billion in 2025 and is expected to reach \$93.3 billion by 2032 growing at a CAGR of 26% during the forecast period. Farm Robotics and Automation refer to the integration of advanced technologies such as robotics, artificial intelligence (AI), sensors, and data analytics to perform agricultural tasks with minimal human intervention. These systems enhance precision, efficiency, and productivity across various farming activities, including planting, harvesting, weeding, irrigation, and crop monitoring. Automated machinery and robotic systems reduce labor dependency, optimize resource use, and improve crop quality through real-time decision-making. By streamlining repetitive and time-consuming operations, farm robotics and automation contribute to sustainable agriculture, addressing challenges like labor shortages, climate variability, and the growing global demand for food production.

Market Dynamics:

Driver:

Rising labour shortages in agriculture

Farmers are increasingly turning to autonomous tractors, robotic harvesters, and drone systems to offset workforce gaps. Seasonal labour constraints and rising wages are accelerating mechanization across crops and geographies. Robotics improve efficiency

by automating repetitive tasks such as planting, spraying, and harvesting. Integration with AI platforms enhances precision and reduces reliance on manual labour. This driver continues to anchor growth by aligning workforce challenges with technological innovation.

Restraint:

High initial investment costs

Farmers face significant expenses in acquiring drones, robotic harvesters, and autonomous machinery. Smaller farms struggle to justify investments due to limited budgets and uncertain ROI. Maintenance, training, and integration with digital platforms add further financial burden. Price-sensitive regions are slower to adopt advanced robotics solutions. This restraint continues to limit scalability despite proven productivity benefits.

Opportunity:

Increasing demand for high-yield crops

Farmers are leveraging robotics to optimize planting density, irrigation, and nutrient application. Automation enables precision farming practices that maximize yields while reducing resource wastage. Rising global food demand is reinforcing the need for efficient crop production. Governments and cooperatives are supporting robotics adoption through subsidies and training programs. This opportunity is unlocking new revenue streams and reinforcing the role of automation in food security.

Threat:

Data privacy and cybersecurity concerns

Farmers and agribusinesses face risks related to unauthorized access of operational data collected by drones and sensors. Inconsistent global standards create challenges in securing agricultural IoT networks. Cyberattacks targeting farm management platforms reduce confidence in digital adoption. Companies must invest in secure systems and compliance frameworks to mitigate risks. This threat continues to constrain long-term adoption despite rising demand for smart farming solutions.

Covid-19 Impact:

Covid-19 disrupted agricultural supply chains and accelerated demand for resilient farming solutions. Lockdowns highlighted vulnerabilities in manual farming practices, boosting interest in robotics and automation. Farmers adopted drones, robotic harvesters, and autonomous tractors to maintain productivity during restrictions. E-commerce growth created new opportunities for digital farm management tools. Post-pandemic recovery is fostering hybrid models that combine traditional farming with automation technologies. This impact continues to reshape agricultural strategies and strengthen reliance on robotics innovation.

The drone systems segment is expected to be the largest during the forecast period

The drone systems segment is expected to account for the largest market share during the forecast period due to strong demand for aerial monitoring and spraying. Farmers are increasingly adopting drones for crop health assessment, irrigation management, and pesticide application. Integration with AI platforms enhances predictive analytics and resource optimization. Advances in battery technology are improving flight duration and payload capacity. Retailers and cooperatives are promoting drone adoption to improve farm productivity. This segment continues to dominate due to its versatility and broad application potential.

The crop monitoring & yield mapping segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the crop monitoring & yield mapping segment is predicted to witness the highest growth rate owing to rising demand for precision insights. Farmers are leveraging robotics and sensors to track crop growth, detect diseases, and forecast yields. Real-time monitoring reduces reliance on manual observation and improves decision-making. Integration with IoT devices and cloud platforms enhances accuracy and efficiency. Governments and cooperatives are promoting crop monitoring solutions to improve food security.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to advanced infrastructure and strong regulatory frameworks. The U.S. and Canada are leading adoption through high demand for smart farming solutions. Farmers are increasingly investing in drones, robotic harvesters, and autonomous tractors. Venture capital funding is accelerating innovation in agri-tech

startups. Regulatory clarity and strong marketing campaigns are fostering confidence in robotics adoption. E-commerce integration is strengthening the role of automation in farm management.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR due to rapid urbanization and rising food demand. Countries like China, India, and Japan are investing heavily in smart farming initiatives. Government-led programs are fostering infrastructure development for robotics-enabled agriculture. Local startups and global players are scaling mobile-first solutions tailored to regional needs. Rising middle-class incomes and digital adoption are accelerating participation in automated farming. E-commerce growth in Southeast Asia is creating new opportunities for robotics integration in agriculture. Asia Pacific's momentum is driven by demographic scale, policy support, and technological innovation, positioning it as the fastest-growing regional market.

Key players in the market

Some of the key players in Farm Robotics & Automation Market include John Deere, AGCO Corporation, CNH Industrial N.V., Kubota Corporation, Yanmar Co. Ltd., Na'o Technologies, Agrobot, Harvest CROO Robotics, Blue River Technology (John Deere division), AgEagle Aerial Systems Inc., Ecorobotix, Robotics Plus Ltd., Iron Ox Inc., FarmWise Labs Inc. and Lely Industries N.V.

Key Developments:

In January 2025, Deere unveiled autonomous tillage systems for its 8R and 9R tractors. These robotics-driven solutions reduce labor dependency and optimize field operations. The launch reflects Deere's commitment to scaling autonomy in farm machinery and embedding robotics into mainstream agriculture.

In April 2024, AGCO and Trimble closed their joint venture, PTx Trimble, with AGCO acquiring an 85% stake in Trimble's agriculture business. This \$2 billion transaction integrates Trimble's precision ag technologies with AGCO's JCA Technologies, creating a global platform for farm robotics, autonomy, and mixed-fleet solutions.

Robot Types Covered:

Autonomous Tractors

Robotic Harvesters

Drone Systems

Milking Robots

Weeding & Planting Robots

Irrigation & Fertilizer Robots

Sorting & Packaging Robots

Other Robot Types

Offerings Covered:

Hardware

Software

Services

Farm Sizes Covered:

Large-Scale Commercial Farms

Medium Farms

Smallholder Farms

Urban & Vertical Farms

Other Farm Sizes

Applications Covered:

- Crop Monitoring & Yield Mapping
- Soil & Irrigation Management
- Fertilizer & Pesticide Application
- Harvesting & Planting
- Livestock Monitoring & Dairy Automation
- Other Applications

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 Application Analysis
- 3.7 Emerging Markets
- 3.8 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 FARM ROBOTICS & AUTOMATION MARKET, BY ROBOT TYPE

- 5.1 Introduction
- 5.2 Autonomous Tractors
- 5.3 Robotic Harvesters
- 5.4 Drone Systems
- 5.5 Milking Robots
- 5.6 Weeding & Planting Robots
- 5.7 Irrigation & Fertilizer Robots
- 5.8 Sorting & Packaging Robots
- 5.9 Other Robot Types

6 GLOBAL FARM ROBOTICS & AUTOMATION MARKET, BY OFFERING

- 6.1 Introduction
- 6.2 Hardware
- 6.3 Software
- 6.4 Services

7 GLOBAL FARM ROBOTICS & AUTOMATION MARKET, BY FARM SIZE

- 7.1 Introduction
- 7.2 Large-Scale Commercial Farms
- 7.3 Medium Farms
- 7.4 Smallholder Farms
- 7.5 Urban & Vertical Farms
- 7.6 Other Farm Sizes

8 GLOBAL FARM ROBOTICS & AUTOMATION MARKET, BY APPLICATION

- 8.1 Introduction
- 8.2 Crop Monitoring & Yield Mapping
- 8.3 Soil & Irrigation Management
- 8.4 Fertilizer & Pesticide Application
- 8.5 Harvesting & Planting
- 8.6 Livestock Monitoring & Dairy Automation
- 8.7 Other Applications

9 GLOBAL FARM ROBOTICS & AUTOMATION 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 John Deere
- 11.2 AGCO Corporation
- 11.3 CNH Industrial N.V.
- 11.4 Kubota Corporation
- 11.5 Yanmar Co. Ltd.
- 11.6 Na?o Technologies
- 11.7 Agrobot
- 11.8 Harvest CROO Robotics
- 11.9 Blue River Technology (John Deere division)
- 11.10 AgEagle Aerial Systems Inc.
- 11.11 Ecorobotix
- 11.12 Robotics Plus Ltd.
- 11.13 Iron Ox Inc.
- 11.14 FarmWise Labs Inc.
- 11.15 Lely Industries N.V.

List Of Tables

LIST OF TABLES

Table 1 Global Farm Robotics & Automation Market Outlook, By Region (2024-2032) (\$MN)

Table 2 Global Farm Robotics & Automation Market Outlook, By Robot Type (2024-2032) (\$MN)

Table 3 Global Farm Robotics & Automation Market Outlook, By Autonomous Tractors (2024-2032) (\$MN)

Table 4 Global Farm Robotics & Automation Market Outlook, By Robotic Harvesters (2024-2032) (\$MN)

Table 5 Global Farm Robotics & Automation Market Outlook, By Drone Systems (2024-2032) (\$MN)

Table 6 Global Farm Robotics & Automation Market Outlook, By Milking Robots (2024-2032) (\$MN)

Table 7 Global Farm Robotics & Automation Market Outlook, By Weeding & Planting Robots (2024-2032) (\$MN)

Table 8 Global Farm Robotics & Automation Market Outlook, By Irrigation & Fertilizer Robots (2024-2032) (\$MN)

Table 9 Global Farm Robotics & Automation Market Outlook, By Sorting & Packaging Robots (2024-2032) (\$MN)

Table 10 Global Farm Robotics & Automation Market Outlook, By Other Robot Types (2024-2032) (\$MN)

Table 11 Global Farm Robotics & Automation Market Outlook, By Offering (2024-2032) (\$MN)

Table 12 Global Farm Robotics & Automation Market Outlook, By Hardware (2024-2032) (\$MN)

Table 13 Global Farm Robotics & Automation Market Outlook, By Software (2024-2032) (\$MN)

Table 14 Global Farm Robotics & Automation Market Outlook, By Services (2024-2032) (\$MN)

Table 15 Global Farm Robotics & Automation Market Outlook, By Farm Size (2024-2032) (\$MN)

Table 16 Global Farm Robotics & Automation Market Outlook, By Large-Scale Commercial Farms (2024-2032) (\$MN)

Table 17 Global Farm Robotics & Automation Market Outlook, By Medium Farms (2024-2032) (\$MN)

Table 18 Global Farm Robotics & Automation Market Outlook, By Smallholder Farms

(2024-2032) (\$MN)

Table 19 Global Farm Robotics & Automation Market Outlook, By Urban & Vertical Farms (2024-2032) (\$MN)

Table 20 Global Farm Robotics & Automation Market Outlook, By Other Farm Sizes (2024-2032) (\$MN)

Table 21 Global Farm Robotics & Automation Market Outlook, By Application (2024-2032) (\$MN)

Table 22 Global Farm Robotics & Automation Market Outlook, By Crop Monitoring & Yield Mapping (2024-2032) (\$MN)

Table 23 Global Farm Robotics & Automation Market Outlook, By Soil & Irrigation Management (2024-2032) (\$MN)

Table 24 Global Farm Robotics & Automation Market Outlook, By Fertilizer & Pesticide Application (2024-2032) (\$MN)

Table 25 Global Farm Robotics & Automation Market Outlook, By Harvesting & Planting (2024-2032) (\$MN)

Table 26 Global Farm Robotics & Automation Market Outlook, By Livestock Monitoring & Dairy Automation (2024-2032) (\$MN)

Table 27 Global Farm Robotics & Automation Market Outlook, By Other Applications (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.

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