

# **Agricultural Robotics & Automation Market Forecasts to 2032 - Global Analysis By Robot Type (Driverless Tractors, Unmanned Aerial Vehicles (UAVs), Automated Harvesting Systems, Milking Robots, Weeding Robots, Seeding & Planting Robots, Irrigation Robots, and Other Robot Types), Offering, Farming Environment, Farm Size, Application and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Agricultural Robotics & Automation Market is accounted for \$16.59 billion in 2025 and is expected to reach \$54.43 billion by 2032 growing at a CAGR of 18.5% during the forecast period. Agricultural Robotics & Automation involves the use of smart, automated equipment and robotic systems designed to execute agricultural tasks independently or with limited human control. Leveraging technologies such as AI, IoT sensors, computer vision, and navigation systems, these solutions enable precise and efficient field operations including sowing, crop monitoring, harvesting, and animal care. The adoption of automation in agriculture helps address labor shortages, lowers input costs, enhances operational accuracy, and promotes sustainable, data-driven farming practices while boosting overall farm productivity.

### **Market Dynamics:**

Driver:

Precision agriculture adoption

Farmers are increasingly adopting technologies such as drones, autonomous tractors, and AI-driven sensors to optimize resource utilization. These innovations enable more accurate seeding, irrigation, and fertilization, reducing waste and improving crop yields. Rising global food demand and pressure to maximize productivity are accelerating the shift toward data-driven farming practices. Integration of IoT and machine learning is enhancing decision-making and operational efficiency across farms. Governments and agricultural organizations are promoting smart farming initiatives to ensure sustainability and food security. As precision agriculture becomes mainstream, robotics adoption is expected to expand rapidly across both developed and emerging markets.

#### Restraint:

##### Lack of technical expertise

Many agricultural workers lack training in robotics, AI, and data analytics, slowing the pace of implementation. Smaller farms often struggle with the complexity of integrating automation into traditional practices. High costs of skilled labor and limited access to training programs further exacerbate the challenge. Vendors face difficulties in providing adequate support and education to rural communities. Without sufficient expertise, farmers risk underutilizing advanced tools or mismanaging robotic systems. This knowledge gap continues to restrain the full potential of agricultural automation worldwide.

#### Opportunity:

##### Robotics-as-a-service (RaaS)

Farmers can access advanced robotic solutions without heavy upfront investments, paying instead through subscription or usage-based models. This approach lowers financial barriers and makes automation accessible to small and medium-sized farms. Service providers are offering bundled solutions that include maintenance, software updates, and technical support. RaaS models also encourage experimentation with new technologies, enabling farmers to scale usage as needed. Advances in connectivity and cloud platforms are making remote monitoring and deployment more feasible. As RaaS expands, it is expected to accelerate agricultural robotics penetration across diverse geographies.

#### Threat:

## Cybersecurity vulnerabilities

Autonomous equipment, drones, and IoT sensors generate vast amounts of data that can be vulnerable to breaches. Cyberattacks targeting farm management platforms may disrupt operations or compromise sensitive crop information. Weak security protocols in rural areas heighten the risk of unauthorized access. As robotics integrate with cloud-based analytics, safeguarding digital infrastructure becomes critical. Companies must invest in encryption, secure networks, and real-time monitoring to mitigate threats.

## **Covid-19 Impact:**

The pandemic disrupted agricultural supply chains, delaying equipment deliveries and limiting workforce availability. Lockdowns restricted access to farms and slowed the deployment of new robotic systems. However, the crisis highlighted the importance of automation in maintaining food production during labor shortages. Farmers increasingly turned to drones and autonomous machinery to ensure continuity of operations. The pandemic also accelerated digital transformation, with greater reliance on remote monitoring and predictive analytics. Post-Covid, agricultural robotics adoption is expected to rise as farms prioritize efficiency and risk management.

The unmanned aerial vehicles (UAVs) segment is expected to be the largest during the forecast period

The unmanned aerial vehicles (UAVs) segment is expected to account for the largest market share during the forecast period. UAVs are widely used for crop monitoring, spraying, and field mapping, offering unmatched efficiency. Their ability to cover large areas quickly makes them indispensable for modern farming. Advances in imaging technologies and AI-driven analytics are enhancing UAV capabilities. Farmers are increasingly relying on drones to detect pests, diseases, and nutrient deficiencies. Cost reductions and regulatory support are further boosting UAV adoption.

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

Over the forecast period, the crop monitoring & analysis segment is predicted to witness the highest growth rate. Rising demand for real-time insights into crop health is driving adoption of advanced sensors and analytics platforms. Farmers are leveraging robotics to track soil conditions, plant growth, and weather impacts. Integration of AI and

machine learning is enabling predictive modeling for yield optimization. Cloud-based platforms are making data accessible and actionable across diverse farm sizes. Growing emphasis on sustainability and resource efficiency is reinforcing demand for monitoring solutions.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share. Strong technological leadership and widespread adoption of precision farming practices are driving growth. The U.S. and Canada are investing heavily in autonomous tractors, drones, and AI-driven platforms. Government initiatives and subsidies are supporting farmers in adopting smart technologies. Robust infrastructure and access to skilled labor further strengthen the region's position. Strategic collaborations between agritech firms and research institutions are accelerating innovation.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. Rapid population growth and rising food demand are pressuring farms to embrace automation. Countries like China, India, and Japan are investing in smart farming technologies to boost productivity. Government programs promoting mechanization and digital agriculture are accelerating adoption. Local startups and global players are collaborating to deliver cost-effective solutions tailored to regional needs. Expanding rural connectivity is enabling wider deployment of IoT and robotic systems.

Key players in the market

Some of the key players in Agricultural Robotics & Automation Market include Deere & Company, Autonomous Solutions, Inc., AGCO Corporation, AgEagle Aerial Systems, CNH Industrial N.V., Harvest Automation, Trimble Inc., Na?o Technologies, DJI, Agrobot, Lely, ecoRobotix, DeLaval, Blue River Technology, and BouMatic Robotics.

### **Key Developments:**

In December 2025, Deere & Company entered into an agreement to acquire Tenna, a construction technology company, and a holding of The Conti Group, that offers mixed-fleet equipment operations and asset tracking solutions. Tenna will continue to operate

as an independent business marketed directly to construction customers under the Tenna tradename and will focus on scaling and growing the business through its proven mixed-fleet customer-focused business model.

In September 2025, AGCO announced its signing of a Virtual Power Purchase Agreement (VPPA) in partnership with BRUC, one of the largest renewable energy groups in Spain. The agreement marks a significant milestone in AGCO's renewable energy strategy and helps reduce its Scope 2 greenhouse gas emissions relating to its indirect onsite purchased electricity.

#### Robot Types Covered:

Driverless Tractors

Unmanned Aerial Vehicles (UAVs)

Automated Harvesting Systems

Milking Robots

Weeding Robots

Seeding & Planting Robots

Irrigation Robots

Other Robot Types

#### Offerings Covered:

Hardware

Software

Services

#### Farming Environments Covered:

Outdoor

Indoor

Farm Sizes Covered:

Small-hold Farms

Mid-sized Farms

Large-scale Farms

Applications Covered:

Field Farming

Harvest Management

Crop Monitoring & Analysis

Soil & Irrigation Management

Dairy & Livestock Management

Weather Tracking & Monitoring

Inventory & Farm Management

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

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