

## **Crop Harvesting Robots Market Report and Forecast 2025-2034**

Market Report | 2025-07-14 | 151 pages | EMR Inc.

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### **Report description:**

The global crop harvesting robots market size reached approximately USD 9.24 Billion in 2024. The market is further projected to grow at a CAGR of 28.30% between 2025 and 2034, reaching a value of USD 111.67 Billion by 2034.

#### Crop Harvesting Robots Market Growth

Crop harvesting robots are designed to harvest fruits and vegetables. They do so by using cameras and sensors to detect crops that have fully matured and ripened. Robotic arms or other tools are used for harvesting without causing any damage to the produce.

Increased adoption of precision agriculture is a key factor fuelling the growth of the crop harvesting robots market. The integration of crop harvesting robots with precision farming can aid in enhancing crop yield as precision farming allows real-time monitoring of moisture content and temperature, among other environmental and external factors.

#### Crop Harvesting Robots Market Trends

The unavailability of labour in the agricultural sector due to the rising migration of rural youth to urban cities is boosting the utilisation of crop harvesting robots in various regions to tackle challenges such as surge in labour costs.

Rising research and development efforts by key market players is a crucial trend in the crop harvesting robots market. Efforts by manufacturers to improve the functioning and data analysing capabilities of the crop harvesting robots, along with the increasing availability of fully and semi-automatic versions are also aiding the market expansion.

#### Recent Developments

As per the crop harvesting robots market analysis, AGCO announced in June 2022 that it is adding new functions to its Fendt

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Xaver concept vehicle, an autonomous crop harvesting robot. These new capabilities are expected to be integrated through Apex.OS, software development kit (SDK) by Apex.AI, a software development company.

## Industry Outlook

As per the crop harvesting robots industry analysis, the sustainable development goals of the UN include the usage of agricultural robots. For instance, robots can prevent the overuse of chemicals and fertilisers in crops by offering better precision compared to manual handling. These robots can also monitor the soil and weather conditions and can assist the farmers in adapting to the local conditions to ensure the best yield of the crops.

According to the UN research, the total world population is expected to reach around 8.6 billion in 2030 and 9.8 billion in 2050. The UN report shows that the world population increases by around 83 million people every year, which is expected to create a high demand for food in the world. The report also suggests that the population of Nigeria is growing at a rapid rate and it is expected to be the third most populous country in the world by 2050. This is projected to increase the demand for food and aid in the growth of the crop harvesting robots industry in the country.

As per the industry reports, the total food production across the world should be increased by 70% by the year 2050 to meet the demand of the growing population. Several researchers are making efforts to develop next-gen crop robotics that can help meet this demand. For example, Professor Heinz Ulbrich and his team at the Institute of Applied Mechanics of the Technische Universität München (TUM) are developing a robotic arm to make the farming process easier for farmers which can boost the crop harvesting robots industry revenue.

Market players are establishing partnerships with dealers to increase the sales of its products. For instance, John Deere, a global leader in turf equipment, announced in June 2023 that it has established a partnership with EGO and its parent company Chevron. This partnership is expected to aid John Deere in selling its battery-operated products such as crop harvesting robots through its dealers.

### What are the Factors Contributing to the Growth of the Global Market?

- Continuous innovations in AI and machine learning enhance the precision and efficiency of harvesting robots.
- Increasing labour shortages in agriculture drive the demand for automated solutions and fuel crop harvesting robots market value.
- Robots provide consistent and precise harvesting, reducing crop damage and improving yield quality.
- Significant investments and funding in agri-tech and robotics boost market growth.

### What are the Challenges in the Global Market?

- The initial investment for purchasing and maintaining harvesting robots is high, posing a barrier for small-scale farmers.
- Current technology may struggle with the complexity of different crop types and varying agricultural environments, affecting crop harvesting robots demand growth.
- Effective operation requires extensive and high-quality data for machine learning models, which may not always be available.

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- Limited awareness and reluctance to adopt new technologies in some regions hinder market growth.

#### What Opportunities Exist in the Global Market?

- Increasing consumer demand for organic produce and precision farming creates opportunities for advanced robotic solutions.
- Growing agricultural activities in emerging markets offer significant growth potential and aid crop harvesting robots demand forecast.
- Combining harvesting robots with IoT and big data analytics can enhance efficiency and decision-making in farming.
- Supportive government policies and subsidies for adopting advanced agricultural technologies boost market growth.

#### What Setbacks Faced by the Global Market?

- Varying international standards and stringent regulations can pose challenges to market expansion and negatively affect crop harvesting robots market revenue.
- Economic downturns and fluctuations in commodity prices can impact investment and adoption rates.
- Potential environmental impact of robotic farming, including energy consumption and e-waste, could lead to stricter regulations.
- Rapid advancements in technology may render existing systems obsolete, necessitating continuous upgrades.

#### Key Players in the Global Market and their Competitive Strategies

The global crop harvesting robots market is characterized by intense competition and a focus on technological innovation. Market leaders like John Deere and AGCO Corporation leverage advanced robotics and strategic partnerships to maintain leadership. Innovative startups such as Harvest CROO Robotics and Naio Technologies offer specialized solutions catering to specific crop types and farm sizes, while emerging players like Robotic Harvesting LLC and Octinion contribute with modular platforms and soft robotics expertise, respectively.

##### John Deere & Company

- John Deere focuses on integrating AI and machine learning to enhance precision and efficiency in crop harvesting which can boost crop harvesting robots demand.
- Strong distribution network and service centers worldwide ensure reliable support for customers.
- Offers customizable harvesting solutions tailored to different crop types and farm sizes.

##### AGCO Corporation

- AGCO pioneers in developing autonomous harvesting robots equipped with advanced sensors for real-time data collection.
- Partnerships with tech firms for integrating IoT solutions into their robotic systems, improving farm management capabilities and increasing crop harvesting robots market opportunities.

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- Strategic acquisitions in emerging markets to strengthen market presence and distribution channels.

#### Harvest CROO Robotics

- Specializes in robotic strawberry harvesters, addressing labour shortages and reducing harvesting costs.
- Scalable robotic solutions adaptable to various fruit and vegetable crops, enhancing operational flexibility and boosting demand of crop harvesting robots market.
- Invests in R&D to enhance robotic gripping technologies for delicate fruit handling.

#### Naio Technologies

- Naio Technologies develops lightweight, autonomous robots for small to medium-sized farms, focusing on weed removal and harvesting.
- Emphasizes eco-friendly robotic designs, reducing chemical usage and promoting sustainable farming practices.
- Targets European and North American markets with localized support and training programs.

#### Robotic Harvesting LLC

- As per the crop harvesting robots market dynamics and trends, the company offers modular robotic platforms adaptable for various crop harvesting applications, ensuring cost-effectiveness and versatility.
- Focuses on user-friendly interfaces and intuitive controls, simplifying adoption for farmers.
- Rapid prototyping capabilities enable quick adaptation to market demands and technological advancements.

#### Octinion

- Specializes in soft robotic grippers and sensors, enhancing dexterity and gentle handling of fragile crops like tomatoes and boosting crop harvesting robots industry expansion.
- Utilizes machine learning algorithms for predictive analytics, optimizing harvesting schedules and yield predictions.
- Expanding operations in Asia-Pacific and South America to capitalize on growing demand for automated harvesting solutions.

#### Crop Harvesting Robots Industry Segmentations

The EMR's report titled "Crop Harvesting Robots Market Report and Forecast 2025-2034" offers a detailed analysis of the market based on the following segments:

#### Market Breakup by Type

- Fruit and Vegetable Harvesting Robots

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- Grain Harvesting Robots

#### Market Breakup by Automation Level

- Semi-Automatic
- Fully Automatic

#### Market Breakup by Region

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

#### Crop Harvesting Robots Market Share by Type

The fruit and vegetable harvesting robots are expected to account for a significant share of the market due to the shrinking agricultural workforce. As per the crop harvesting robots market dynamics and trends, crop harvesting robots have the ability to detect crops suitable for harvesting because of their machine-learning software and sensors and cameras. The fruits and vegetables are harvested without causing any damage to the yield while the swift and efficient nature of the robots aids in reducing labour costs and increasing productivity.

#### Crop Harvesting Robots Market Regional Analysis

North America is anticipated to account for a significant portion of the market over the forecast period, owing to the growing presence of agricultural robot manufacturers, increasing awareness about the benefits of deploying crop harvesting robots, and labour shortages. Additionally, rising government support for AgriTech products and machines to boost crop yield is increasing the crop harvesting robots market development. The presence of large-scale commercial farming operations, the booming agricultural sector, and the growing emphasis on precision farming are contributing towards increased utilisation of crop harvesting robots.

#### Competitive Landscape

The comprehensive EMR report provides an in-depth assessment of the market based on the Porter's five forces model along with giving a SWOT analysis. The report gives a detailed analysis of the following key players in the global crop harvesting robots industry, covering their competitive landscape and latest developments like mergers, acquisitions, investments, and expansion plans.

#### Dogtooth Technologies Limited

Dogtooth Technologies Limited is known for manufacturing smart robots for harvesting fruits such as raspberries and strawberries. The company was founded in 2014 and is headquartered in Hertfordshire, United Kingdom.

#### Harvest Automation Inc

Harvest Automation Inc is a material handling company known for manufacturing and developing robots to increase productivity in

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a cost-efficient manner. The company was founded in 2008 and is headquartered in Massachusetts, United States.

Harvest CROO Robotics LLC.

Harvest CROO Robotics LLC. provides harvesting services to automate crop management and packaging of speciality crops. The company was founded in 2013 and is headquartered in Florida, United States.

Other players of the crop harvesting robots industry include Agrobot, Nao Technologies SAS, Energid Technologies Corporation, Korechi Innovations Inc., and Ridder Holding Harderwijk B.V., among others.

Crop Harvesting Robots Market?Report Snapshots

Crop Harvesting Robots?Market Size

Crop Harvesting Robots Market Growth

Crop Harvesting Robots?Market Trends

Crop Harvesting Robots?Market Share

Crop Harvesting Robots?Companies

Crop Harvesting Robots Market Regional Analysis

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