

IOT in Agriculture Market Forecasts to 2032 – Global Analysis By Component (Hardware, Software and Service), Deployment Model (On-Premise and Cloud-Based), Farm Type, Connectivity, Application and By Geography

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Abstracts

According to Statistics MRC, the Global IOT in Agriculture Market is accounted for \$46.74 billion in 2025 and is expected to reach \$121.34 billion by 2032 growing at a CAGR of 14.6% during the forecast period. The Internet of Things (IoT) is transforming agriculture by enabling smart farming practices that enhance productivity, efficiency, and sustainability. Farmers can track the movements of livestock, crops, weather, and soil moisture in real time by using sensors and connected devices. By using a data-driven approach, precise pest control, fertilization, and irrigation are made possible, which lowers waste and increases yields. To improve efficiency, IoT technologies also enable automated machinery like tractors and drones. Ultimately, IoT in agriculture enables farmers to make well-informed choices, maximize the use of resources, and guarantee food security in a climate that is changing quickly.

According to a study by OnFarm (cited by FAO), farms deploying IoT systems experienced a 1.75 % rise in yield, energy costs dropping by US \$7–13 per acre, and an 8 % reduction in irrigation water use—clear evidence of efficiency gains and resource savings.

Market Dynamics:

Driver:

Growing interest in precision farming

One of the main forces behind the adoption of IoT is the transition from conventional to precision farming. Using real-time data to inform decisions about pest control, irrigation, fertilization, and planting is known as precision farming. Variable rate technology (VRT), GPS-guided tractors, and soil moisture sensors are examples of IoT-enabled devices that assist farmers in applying inputs only where necessary, lowering expenses and their impact on the environment. Moreover, precision agriculture enabled by IoT is becoming critical to improving productivity and sustainability as the world's food demand rises and arable land becomes more limited.

Restraint:

Expensive start-up and ongoing expenses

Even though IoT technologies have long-term advantages, small and medium-sized farmers may find the initial expenses of setup, equipment, and system integration to be unaffordable. IoT-enabled irrigation systems, drones, automated machinery, smart sensors, and GPS modules can all be costly, particularly in developing nations where farm income is scarce. Furthermore, the financial burden is increased by continuing operational costs such as maintenance, software upgrades, cloud storage, and data subscription services. This high price still acts as a major deterrent to adoption in the absence of financial incentives or subsidies.

Opportunity:

Integration with machine learning and artificial intelligence

Advanced capabilities like predictive analytics, anomaly detection, and automated decision-making in farming operations are made possible by the convergence of IoT with AI and ML. AI models trained on IoT sensor data, for instance, can automate pesticide application based on environmental triggers, optimize irrigation schedules, and forecast crop disease outbreaks. More proactive and accurate farming is made possible by this synergy. Additionally, the need for intelligent agriculture systems that do more than just gather data will be better served by businesses that provide integrated IoT-AI platforms.

Threat:

Risks to cyber security and data breach

Farms are increasingly vulnerable to cyber attacks as a result of their increased connectivity through IoT devices. Threats like ransomware attacks, data theft, or automated system sabotage can jeopardize vital processes like fertilization, irrigation, and animal feeding in addition to operational data. Agricultural IoT systems are more susceptible because they frequently lack strong cyber security protocols and frequent updates, in contrast to traditional IT environments. Moreover, a significant breach might undermine consumer, investor, and farmer trust, slowing adoption and drawing regulatory attention.

Covid-19 Impact:

The COVID-19 pandemic affected the IoT in the agriculture market in a variety of ways. Initially, the deployment of IoT devices and infrastructure on farms was hindered by labor shortages, delays in equipment delivery, and disruptions in global supply chains. However, as the necessity of automation, contactless operations, and remote monitoring became more apparent, the crisis also hastened the digital transformation of agriculture. In order to handle labour shortages, remotely check on crop health, and maintain food supply during lockdowns, farmers are increasingly using IoT solutions. Furthermore, the pandemic served as a driving force behind long-term adoption, emphasizing the importance of robust, data-driven farming systems.

The on-premise segment is expected to be the largest during the forecast period

The on-premise segment is expected to account for the largest market share during the forecast period. The need for improved data security, real-time responsiveness, and continuous operation in remote farming areas where internet connectivity is frequently erratic is primarily to blame for this dominance. On-premise solutions give farmers and agribusinesses complete control over sensitive data pertaining to crop health, livestock tracking, and equipment operations by enabling them to manage and store their data locally. Moreover, large farms and agricultural businesses with the infrastructure and technical know-how to manage their own servers and networks are especially fond of these systems. Because on-premise deployments guarantee data ownership and operational stability, they remain the favored option for precision agriculture.

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

Over the forecast period, the LPWAN segment is predicted to witness the highest growth rate. The unique capacity of LPWAN to provide long-range communication with

low energy consumption, which makes it perfect for extensive agricultural deployments across expansive and remote farmlands, is what is driving this rapid growth. Sensors that track soil moisture, crop health, and livestock conditions can transmit data seamlessly for years on a single battery owing to technologies like LoRaWAN, Sigfox, and NB-IoT. Even in places without strong cellular infrastructure, LPWAN offers affordable, scalable connectivity in contrast to Wi-Fi and Bluetooth, which have range limitations. Additionally, the increasing demand for precision agriculture solutions that don't require high-speed networks is driving its growing adoption, making LPWAN a crucial global enabler of smart farming.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, driven by its extensive agricultural landscape, growing concerns about food security, and robust government backing for smart farming technologies. To increase sustainability and productivity, nations like China, India, and Japan are making significant investments in digital agriculture technologies like sensor-based crop monitoring, automated irrigation, and precision farming. Demand for IoT solutions is being further fueled by the adoption of modern farming methods, the expansion of the rural population, and the development of better connectivity infrastructure. Thus, in terms of agricultural adoption and technological development, Asia Pacific remains at the forefront of the global market.

Region with highest CAGR:

Over the forecast period, the South America region is anticipated to exhibit the highest CAGR. This quick expansion is being driven by the growing use of precision farming techniques in nations like Brazil and Argentina, where extensive farming operations are utilizing IoT technologies to boost output, effectively manage resources, and satisfy the rising demand for food exports worldwide. Growing agri-tech investments, encouraging government programs, and alliances with tech companies are speeding up the digital transformation of the farming industry in the area. Moreover, Latin America is positioned to emerge as a major IoT growth hub for agriculture as connectivity infrastructure advances and the advantages of smart farming become more widely recognized.

Key players in the market

Some of the key players in IOT in Agriculture Market include John Deere & Company, Hitachi, Ltd., International Business Machines Corporation, AGCO Corporation, Trimble

Inc., Climate Corporation, AKVA Group, Decisive Farming Corp, Topcon Positioning Systems, Inc., Cisco Systems, Inc., Farmers Edge Inc., Komatsu, Ltd, SlantRange, Inc., CNH Industrial N.V., Raven Industries, Inc. and Kubota Corporation.

Key Developments:

In July 2025, AGCO Corporation announced that it has entered into a fourth amendment to its existing agreement with Tractors and Farm Equipment Limited (TAFE). The amendment extends the expiration date of the Amended and Restated Letter Agreement, or until funds and shares have been deposited in escrow related to the closing of a previously disclosed Buyback Agreement, whichever comes first. According to InvestingPro data, AGCO maintains strong financial health with a current ratio of 1.53, indicating solid liquidity.

In January 2025, John Deere and Wiedenmann announce closer commercial partnership. Under a strategic marketing agreement covering the UK, Ireland and Europe, Wiedenmann turf equipment is available for purchase through John Deere dealerships. The agreement has been extended to provide all John Deere dealers with access to the ever-growing Wiedenmann range of market-leading specialist machinery for turf maintenance and regeneration.

In June 2024, Hitachi, Ltd. and Microsoft Corporation announced projected multi-billion dollar collaboration over the next three years that will accelerate social innovation with generative AI. Through this strategic alliance, Hitachi will propel growth of the Lumada business, with a planned revenue of 2.65 trillion yen (18.9 billion USD)*1 in FY2024, and will promote operational efficiency and productivity improvements for Hitachi Group's 270 thousand employees.

Components Covered:

Hardware

Software

Service

Deployment Models Covered:

On-Premise

Cloud-Based

Farm Types Covered:

Large Farms

Mid Size Farms

Small Farms

Connectivities Covered:

Wi-Fi

Bluetooth

Zigbee

LPWAN

Satellite

Other Connectivities

Applications Covered:

Precision Crop Farming

Livestock Monitoring and Management

Indoor Farming

Aquaculture

Smart Greenhouse

Fish Farm Monitoring

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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