

Agricultural IoT Sensors Market Forecasts to 2032 – Global Analysis By Sensor Type (Soil Moisture Sensors, Temperature Sensors, Nutrient Sensors, Humidity Sensors, Light Sensors, Water Quality Sensors, and Other Sensor Types), Connectivity Technology, Farm Size, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Agricultural IoT Sensors Market is accounted for \$2.58 billion in 2025 and is expected to reach \$5.77 billion by 2032 growing at a CAGR of 12.2% during the forecast period. Agricultural IoT sensors refer to intelligent sensing technologies deployed in agricultural environments to continuously track field, crop, climate, and livestock variables. They measure factors like moisture content, temperature, humidity, soil nutrients, and crop conditions, and relay this information via connected networks to digital management systems. The insights generated support precision farming practices by enhancing control over irrigation, nutrient application, and crop health management, ultimately boosting yields, reducing input waste, and promoting sustainable and efficient agricultural operations.

Market Dynamics:

Driver:

Technological maturation & connectivity

Increasing integration of sensors, cloud computing, and wireless communication enables real-time monitoring of soil, crops, and livestock. Precision agriculture solutions

are becoming more reliable, accurate, and accessible due to smart devices and low-cost IoT networks. Farmers can make informed decisions using data analytics, boosting productivity and reducing resource wastage. Emerging AI algorithms and machine learning models are improving predictive capabilities for weather, irrigation, and crop health. The combination of automation and connectivity also facilitates remote management of large farms, optimizing labor and operational efficiency. As digital infrastructure matures globally, adoption rates of agricultural IoT solutions are expected to accelerate significantly.

Restraint:

Limited technical literacy

Many users struggle to operate advanced monitoring systems and interpret complex data outputs. Insufficient training and lack of awareness hinder the full utilization of sensor technologies. In regions with poor digital infrastructure, connectivity and maintenance issues exacerbate adoption difficulties. Startups and vendors face challenges in designing user-friendly interfaces for non-technical users. The gap in knowledge slows the integration of smart solutions into traditional farming practices.

Opportunity:

Livestock and aquaculture monitoring

Real-time monitoring of animal health, feed, and water quality can optimize productivity and reduce disease outbreaks. Sensors can track temperature, humidity, and environmental stressors, enabling proactive interventions. Fish farms and poultry operations benefit from automated feeding systems and early warning alerts. Integration with mobile apps allows farmers to monitor operations remotely, saving time and labor costs. Data collected over time supports better breeding, nutrition, and welfare strategies. As demand for protein sources rises globally, sensor-based livestock and aquaculture monitoring represents a major growth avenue.

Threat:

Data privacy and cybersecurity risks

Hackers could exploit vulnerabilities in connected devices to access sensitive farm data. Unauthorized access may lead to manipulation of operational settings, crop yields, or

livestock records. Small and mid-sized farms often lack robust cybersecurity measures. Compliance with international data protection standards remains inconsistent across regions. The risk of data breaches may reduce farmer confidence in adopting smart solutions. Companies are investing in encryption, secure cloud platforms, and regular audits to mitigate potential threats.

Covid-19 Impact:

The Covid-19 pandemic affected the Agricultural IoT Sensors market by disrupting supply chains and delaying technology deployment. Lockdowns restricted access to farms, slowing installation of new devices and training programs. However, the crisis accelerated remote monitoring adoption as farmers sought contactless management solutions. There was a notable rise in the demand for automated irrigation, soil, and livestock sensors. IoT platforms facilitated continuous farm operations during labor shortages. Governments and private players supported digital agriculture initiatives to maintain productivity.

The soil moisture sensors segment is expected to be the largest during the forecast period

The soil moisture sensors segment is expected to account for the largest market share during the forecast period, due to its critical role in irrigation management. These sensors help optimize water usage, reducing wastage and improving crop yields. Adoption is increasing in both developed and emerging regions where water scarcity is a concern. Integration with automated irrigation systems enhances efficiency and reduces manual monitoring. Technological improvements have made these sensors more accurate, cost-effective, and easy to deploy. Soil moisture data also supports predictive analytics for better crop planning.

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

Over the forecast period, the smart greenhouses segment is predicted to witness the highest growth rate. These facilities integrate IoT sensors for temperature, humidity, light, and soil nutrient monitoring. Automation in climate control and irrigation improves crop quality and reduces operational costs. The technology allows year-round cultivation, maximizing output in limited spaces. Data-driven insights help farmers optimize plant growth and reduce energy consumption. Demand for high-value crops and controlled-environment farming is driving adoption globally.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, due to the region's large agricultural base and increasing investments in smart farming. Countries like China, India, and Japan are implementing precision agriculture solutions and modern farm infrastructure. Government initiatives promoting digital agriculture are further accelerating market growth. Rapid adoption of IoT technologies helps farmers enhance yield and operational efficiency. Collaborations between global technology providers and local partners expand accessibility.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, driven by rapid adoption of precision farming to improve crop productivity and resource efficiency. Rising food demand from a growing population, coupled with shrinking arable land, is pushing farmers to use sensor-based monitoring for soil, weather, and crop health. Strong government support for smart agriculture, increasing smartphone and internet penetration, and expanding agritech startups further accelerate market growth across countries like China, India, and Australia.

Key players in the market

Some of the key players in Agricultural IoT Sensors Market include John Deere, PrecisionHawk Inc., AGCO Corporation, AgJunction Inc., CNH Industrial N.V., TeeJet Technologies, Trimble Inc., Valmont Industries, Inc., Topcon Corporation, Lindsay Corporation, Kubota Corporation, Hexagon AB, CLAAS KGaA mbH, Raven Industries, Inc., and SDF Group.

Key Developments:

In December 2025, Hexagon announced it has joined the Multilateral Memorandum of Understanding (MMoU) on Strengthening the Global Geodesy Supply Chain. The MMOU is a shared recognition by the United Nations Global Geodetic Centre of Excellence (UN-GGCE) alongside member state government departments and agencies, private sector companies, organisations, associations, and academic institutions, that action is required to make the foundations of positioning, navigation, and timing services robust.

In August 2025, Topcon Healthcare, Inc. announced the acquisition of Intelligent Retinal Imaging Systems (IRIS), the U.S.-based pioneer in cloud-based retinal screening technology. This strategic acquisition marks a major step in enhancing Topcon Healthcare's presence in primary care, reinforcing its commitment to early disease detection through connected, data-driven care.

Sensor Types Covered:

Soil Moisture Sensors

Temperature Sensors

Nutrient Sensors

Humidity Sensors

Light Sensors

Water Quality Sensors

Other Sensor Types

Connectivity Technologies Covered:

Wired

Wireless

Farm Sizes Covered:

Small Farms

Medium Farms

Large Farms

Applications Covered:

Precision Farming

Soil Monitoring

Climate Monitoring

Crop Health Monitoring

Livestock Monitoring

Smart Greenhouses

Aquaculture

Other Applications

End Users Covered:

Farmers

Agricultural Cooperatives

Research Institutions

Public Sector

Agritech Service Providers

Other End Users

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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