

Smart Farming Market Forecasts to 2032 – Global Analysis By Offering (Hardware, Software and Services), Farm Type (Large-Scale Farms, Mid-Sized Farms, and Small-Scale Farms), Technology, Application and By Geography

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Abstracts

According to Statistics MRC, the Global Smart Farming Market is accounted for \$24.05 billion in 2025 and is expected to reach \$52.85 billion by 2032 growing at a CAGR of 11.9% during the forecast period. Smart farming uses digital technologies such as IoT, AI, drones, sensors, and data analytics to optimize agricultural operations. It enhances yield prediction, resource efficiency, and real-time monitoring, transforming traditional farming into data-driven enterprises. Growing pressures for higher productivity with minimal environmental impact, coupled with global food security concerns, are accelerating adoption. The market benefits from government initiatives supporting agri-digitalization and rising venture capital in agri-tech startups, making smart farming a key pillar of future agriculture systems.

According to Statista, over 50% of global farmers had adopted at least one smart farming technology by 2024, with \$16 billion invested in agri-tech globally.

Market Dynamics:

Driver:

Increasing demand for sustainable agriculture practices

Growing consumer awareness and stringent environmental regulations are compelling the industry to optimize water usage, minimize chemical fertilizers, and reduce its

overall carbon footprint. Smart technologies like precision irrigation and data-driven resource management directly address these needs by enabling targeted application, which cuts waste and environmental impact. This alignment with global sustainability goals ensures continued investment and adoption, fundamentally reshaping modern agricultural practices for a more resource-secure future.

Restraint:

Limited technical expertise among farmers

A significant barrier to widespread smart farming adoption is the prevalent technical skills gap among the global farming community. Many farmers, particularly in developing regions and older demographics, lack the training to operate complex digital platforms, IoT devices, and data analytics software. This knowledge deficit leads to apprehension, improper system utilization, and reluctance to invest in advanced technologies. Consequently, the high perceived complexity slows market penetration, creating a pressing need for comprehensive training programs and more intuitive, user-friendly solutions to bridge this digital divide.

Opportunity:

Advancements in AI and IoT for precision farming

Breakthroughs in Artificial Intelligence (AI) and the Internet of Things (IoT) are creating unprecedented opportunities for market expansion. These technologies form the backbone of precision farming, with AI algorithms analyzing vast datasets from sensors and drones to provide actionable insights on crop health, pest prediction, and yield optimization. This enables hyper-localized decision-making, automating tasks and maximizing output from every hectare. The continuous evolution of these technologies promises even greater efficiencies, opening new revenue streams for agri-tech firms and significantly boosting farm productivity and profitability.

Threat:

Cyber security risks in connected farming systems

As farms become more interconnected, they face an escalating threat from cyber security vulnerabilities. Connected irrigation systems, autonomous tractors, and centralized data platforms are potential targets for ransomware, data theft, or malicious

control that could disrupt entire operations. A successful attack could lead to catastrophic financial losses from halted production or corrupted data, eroding farmer trust in digital solutions. This looming risk necessitates robust security protocols and could deter adoption, potentially stifling market growth if not addressed proactively by technology providers.

Covid-19 Impact:

The pandemic initially disrupted the smart farming market through supply chain bottlenecks, delaying hardware shipments and installation. Labor shortages also heightened the urgency for automation. However, the crisis ultimately acted as a catalyst, sharply accelerating the long-term adoption of digital tools. Farmers recognized the critical need for remote monitoring and operational resilience, leading to a surge in demand for autonomous and data-driven solutions. This shift in mindset has fast-tracked the market's evolution, embedding smart technologies as essential components for future-proofing the agricultural sector.

The hardware segment is expected to be the largest during the forecast period

The hardware segment is expected to account for the largest market share during the forecast period attributed to the foundational need for physical components to enable digital agriculture. This includes sensors, GPS units, drones, and automated machinery, which represent the essential, upfront capital investment for any smart farming operation. As the initial layer of implementation, hardware demand remains consistently high, especially with the ongoing global rollout of precision agriculture techniques. Furthermore, the continuous innovation in robust and cost-effective devices ensures this segment maintains the largest market share, forming the tangible backbone upon which all software and services rely.

The small-scale farms segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the small-scale farms segment is predicted to witness the highest growth rate driven by the increasing availability of cost-effective, scalable solutions. Technologies such as cloud-based SaaS platforms and modular sensor kits are becoming more accessible, lowering the entry barrier for smaller operations. Governments and NGOs are also actively promoting digitalization among smallholders to enhance food security and income. This convergence of affordable technology and supportive initiatives empowers small-scale farmers to compete effectively, fueling rapid

adoption rates and the segment's remarkable projected growth.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share. This leadership is anchored by early technological adoption, strong government support for agri-tech, and the presence of large, commercially-driven farm enterprises with high investment capacity. The region's advanced telecommunications infrastructure and key market players continually introduce cutting-edge solutions. Moreover, high awareness of sustainable practices among farmers creates a receptive environment for precision agriculture tools, consolidating North America's position as the dominant revenue-generating region in the smart farming landscape.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. This explosive growth is fueled by the pressing need to enhance yields for massive populations, coupled with strong governmental initiatives promoting modern agriculture in countries like India and China. The region contains a vast number of small-scale farmers now gaining access to mobile-based and affordable smart farming technologies. This untapped potential, combined with increasing investments in rural connectivity and agri-tech startups, positions Asia Pacific as the fastest-growing market, poised for significant expansion.

Key players in the market

Some of the key players in Smart Farming Market include Deere & Company (John Deere), CNH Industrial, AGCO Corporation, Kubota Corporation, Trimble Inc., Bayer AG (Crop Science), Corteva Agriscience, Syngenta Group, BASF SE, Yara International, Nutrien Ltd., Netafim (part of Orbia), Valmont Industries (Valley Irrigation), DJI (SZ DJI Technology Co., Ltd.), Robert Bosch GmbH (Bosch), and Lely Group.

Key Developments:

In September 2025, AGCO Corporation a global leader in agricultural machinery and precision ag technology, is showcasing some of the most innovative precision agriculture technology in the industry during its annual Tech Day at the more than century-old G?tz Agrardienst farm in Markt Indersdorf, Germany. The program on September 30 – October 1 spotlights Farmer-First innovations that work throughout the

crop cycle and across almost any fleet a farmer owns to help increase yields and boost profitability.

In September 2025, At Expo 2025 Osaka, Japanese farm equipment leader Kubota Corporation introduced a global first: the driverless hydrogen fuel cell tractor. This breakthrough combines automation and green hydrogen technology, signaling a new era of sustainable farming technology. For India, an agricultural economy at the heart of global food security, the innovation opens conversations about climate-smart farming, automation, and the future of rural livelihoods.

In September 2023, Trimble announced a definitive agreement to form a joint venture with AGCO to better serve farmers with factory fit and aftermarket applications in the mixed fleet precision agriculture market. Trimble and AGCO's shared vision is to create a global leader in mixed fleet smart farming and autonomy solutions. In aggregate, Trimble expects approximately \$3 billion in value from the transaction from pre-tax cash proceeds, Trimble's 15 percent stake in the joint venture, and the related commercial agreements.

Offerings Covered:

Hardware

Software

Services

Farm Types Covered:

Large-Scale Farms

Mid-Sized Farms

Small-Scale Farms

Technologies Covered:

Guidance Technology (GPS/GNSS)

Remote Sensing & Control

Variable Rate Technology (VRT)

Internet of Things (IoT) and Connectivity

Applications Covered:

Precision Farming

Livestock Monitoring & Management

Precision Aquaculture

Precision Forestry

Smart Greenhouse Management

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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