AI in Agriculture Market to Hit $8.97B by 2031, Driven by Robotics, Precision Farming & Analytics | DataM Intelligence

AI in Agriculture Market to reach US$ 8.97 billion by 2031, driven by precision farming, automation, and sustainable practices across key global regions.

AI in Agriculture Market

AUSTIN, TX, UNITED STATES, July 15, 2025 /EINPresswire.com/ -- AI in Agriculture Market reached US$ 1.7 billion in 2023 and is expected to reach US$ 8.97 billion by 2031, growing at a CAGR of 23.1% during the forecast period 2024–2031.

This exponential growth is being driven by a transformation in the way modern agriculture operates. The industry is shifting from traditional, intuition-based farming methods to precision-based, data-driven systems. Artificial Intelligence (AI) is playing a pivotal role by helping farmers analyze real-time data on weather, soil health, pest infestations, and crop performance. As a result, productivity is increasing, costs are being minimized, and environmental sustainability is being improved across the entire agricultural value chain.

> AI in Agriculture is projected to grow from US$1.7B in 2023 to US$8.97B by 2031, driving the future of precision farming worldwide.”
>
> *DataM Intelligence*

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Market Dynamics

Precision Agriculture in Action:

The most significant application of AI in farming is in precision agriculture the science of observing, measuring, and responding to variability in crops. AI algorithms, paired with drones and IoT sensors, provide farmers with actionable insights that help in optimal sowing, irrigation,

fertilization, and pest control. This results in better yield forecasts, improved resource utilization, and reduced environmental impact.

Addressing Labor Shortages:
In many regions around the world, agriculture is facing a labor shortage due to aging populations and urban migration. AI-driven machines and autonomous robots are filling this gap. These technologies are capable of performing repetitive and labor-intensive tasks such as planting, spraying, weeding, and harvesting with greater efficiency and precision than human labor.

Enhancing Crop Monitoring and Management:
Computer vision technology integrated with machine learning is enabling accurate crop and soil monitoring. Farmers can detect diseases, nutrient deficiencies, and pest infestations earlier, allowing them to take corrective measures before they impact yields. Predictive analytics powered by AI also help in identifying future issues based on weather trends, soil conditions, and crop health data.

Climate Resilience and Sustainable Farming:
AI is helping farmers adapt to climate change by providing tools to predict extreme weather conditions and adjust farming practices accordingly. Furthermore, AI systems help reduce the overuse of water, fertilizers, and pesticides, promoting more sustainable and eco-friendly agricultural practices.

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Competitive Landscape:

Microsoft
IBM
Granular Inc.
AgEagle Aerial Systems Inc.
Google LLC
Deere & Company
Cropin Technology Solutions Private Limited
Bayer AG
KissanAI
Niqo Robotics

Market Segmentation:

By Deployment: Cloud, On-Premise.
By Technology: Machine Learning, Predictive Analytics, Computer Vision, Others.

By Offering: Software, Hardware, Service.
By Application: Precision Farming, Drone Analytics, Agriculture Robots, Livestock Monitoring, Labor Management, Others.
By Farm Size: Small (Less Than 5 Hectare), Medium (5 -10 Hectare), Large (Above 10 Hectare).
By End-User: Farmers, Agribusinesses, Others.

Latest News of USA:

In the United States, AI in agriculture is quickly moving from pilot stages to large-scale deployment. One major trend is the rise of robotic weeders that use computer vision and machine learning to identify and eliminate unwanted plants without herbicides. This addresses both environmental concerns and the growing resistance to chemical weed control.

Startups and established manufacturers are also launching AI-powered sprayers that selectively target areas of pest or disease infestation, reducing chemical waste by as much as 90%. These solutions are gaining attention from large farms across the Midwest and California, where precision is essential due to large field sizes and rising input costs.

In parallel, AI-based crop analytics platforms are being integrated with farm management software, enabling farmers to optimize planting schedules and resource allocation. University research centers and government-funded projects are supporting this transformation by conducting field trials and developing open-source AI tools for broader access.

Latest News of Japan:

Japan is taking bold steps toward full-scale agricultural automation. Facing a rapidly aging farming population, the government is investing in the deployment of over 20,000 AI-powered robots by the end of 2025. These include autonomous rice planters, fruit-picking robots, and smart spraying systems tailored for local crops and terrains.

One of the most talked-about innovations is the introduction of fully autonomous combine harvesters by leading equipment manufacturers. These machines use AI to detect crop density and soil conditions, adjusting harvesting operations in real time for maximum efficiency.

Japan is also exploring the use of generative AI tools in agriculture. These digital assistants help farmers make decisions about fertilization, irrigation, and crop rotation based on localized data. Some regions have even started using AI chatbots to enhance agritourism experiences and provide real-time farm information to visitors.

Regional Outlook:

North America
North America leads the global market, with the U.S. at the forefront. The region benefits from

strong technological infrastructure, large-scale commercial farms, and early adoption of precision farming tools. Government support and innovation hubs also foster rapid deployment of AI-driven solutions in agriculture.

Asia-Pacific
Asia-Pacific is the fastest-growing region in this sector. Countries like India, China, and Japan are investing heavily in AI-based agriculture to feed growing populations and tackle labor challenges. Widespread smartphone usage, combined with government-backed digital farming initiatives, is accelerating adoption across both developed and developing economies.

Europe
European farmers are increasingly turning to AI to meet the region's strict environmental regulations. Digital tools are being used to monitor soil quality, reduce chemical usage, and track compliance with sustainability standards. Precision livestock farming is also gaining popularity in countries like Germany, France, and the Netherlands.

Rest of the World
Latin America and Africa are showing strong potential for growth. These regions are adopting drone-based monitoring and AI-enabled mobile apps to help smallholder farmers increase efficiency and resilience. As technology costs decline, adoption is expected to rise significantly.

Conclusion:

The AI in Agriculture Market is rapidly evolving, driven by the need for efficiency, sustainability, and climate resilience. With a projected value of US$ 8.97 billion by 2031, AI is becoming a core part of modern farming from robotic weeders in the U.S. to full automation in Japan reshaping global food production.

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