

AI in Agriculture Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Technology (Machine Learning, Predictive Analytics and Computer Vision), By Offering (Hardware, Software and AI-As-A-Service), By Application (Precision Farming, Livestock Monitoring, Agriculture Robots, Drone and Others), By Region and Competition, 2020-2030F

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Report description:

Market Overview

The Global AI in Agriculture Market, valued at USD 1.42 Billion in 2024, is projected to grow at a CAGR of 22.68% to reach USD 4.84 Billion by 2030. AI in agriculture applies machine learning, predictive analytics, and automation to enhance productivity, optimize resource use, and support sustainable farming practices across crop management, livestock monitoring, and operational decision-making. Market growth is driven by rising global food demand, the need to improve farm efficiency, and ongoing labor shortages. Adoption is further supported by increasing integration of data-driven agricultural solutions.

Key Market Drivers

The growth of the Global AI in Agriculture Market is substantially propelled by the persistent rise in global food demand and rapid technological advancements

Expanding global population levels continue to increase pressure on agricultural systems, necessitating higher productivity and more efficient resource use. According to the United Nations World Population Prospects 2024, the global population reached 8.2 billion in 2024 and is projected to peak at 10.3 billion in 2084, driving the need for scalable agricultural solutions. Parallel advances in artificial intelligence, robotics, and sensor technologies are enabling precision farming, automated harvesting, and advanced analytics. These innovations support real-time decision-making and operational efficiency. As evidence of adoption momentum, ElectrolQ reported that global agricultural robot sales rose by 21% in 2023, totaling 20,000 units.

Key Market Challenges

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A significant impediment to market expansion is the substantial initial investment required for AI technologies. Adopting AI-driven agricultural solutions demands considerable capital for sensors, robotics, analytics platforms, and supporting digital infrastructure. These high upfront costs limit adoption, especially for smaller farming enterprises with constrained budgets. Reduced machinery investment further reflects financial pressures in the sector. According to CEMA, agricultural tractor registrations in Europe declined by 8.1% in 2024 compared to 2023, reaching their lowest level since at least 2014 due to diminished profitability and lower government subsidies. These financial constraints suppress purchases of modern equipment increasingly embedded with AI capabilities, delaying wider market adoption and slowing integration across the agricultural value chain.

Key Market Trends

Cloud and Edge Computing Synergy in Farm Operations

Edge and cloud computing integration is reshaping farm operations by enabling real-time data processing near the point of collection. This enhances responsiveness in areas such as irrigation, fertilization, and pest control, even where internet connectivity is limited. According to Corvalent, livestock monitoring systems utilizing edge computing reduced antibiotic usage by 68-77.5% and improved operational efficiency by 20-30%. Decentralized processing minimizes latency and supports autonomous equipment. The Association of Equipment Manufacturers highlighted in April 2024 that precision agriculture-heavily supported by edge and cloud systems-resulted in 30 million fewer pounds of herbicide applied, demonstrating the sustainability benefits of these technologies.

Key Market Players

- IBM Corporation
- Granular Inc.
- Microsoft Corporation
- Deere & Company
- Climate LLC
- Agribotix LLC
- Descartes Labs Inc.
- Prospera Technologies

Report Scope:

In this report, the Global AI in Agriculture Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

- AI in Agriculture Market, By Technology:

- o Machine Learning
- o Predictive Analytics
- o Computer Vision

- AI in Agriculture Market, By Offering:

- o Hardware
- o Software
- o AI-As-A-Service

- AI in Agriculture Market, By Application:

- o Precision Farming
- o Livestock Monitoring
- o Agriculture Robots
- o Drone
- o Others

- AI in Agriculture Market, By Region:

- o North America
 - United States
 - Canada

□ Mexico

o Europe

□ France

□ United Kingdom

□ Italy

□ Germany

□ Spain

o Asia Pacific

□ China

□ India

□ Japan

□ Australia

□ South Korea

o South America

□ Brazil

□ Argentina

□ Colombia

o Middle East & Africa

□ South Africa

□ Saudi Arabia

□ UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the Global AI in Agriculture Market.

Available Customizations:

Global AI in Agriculture Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

-□Detailed analysis and profiling of additional market players (up to five).

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