

Digital Crop Intelligence Market Forecasts to 2032 – Global Analysis By Offering (Hardware, Software and Services), Crop Type, Deployment Mode, Technology, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Digital Crop Intelligence Market is accounted for \$3.4 billion in 2025 and is expected to reach \$12.7 billion by 2032 growing at a CAGR of 20.3% during the forecast period. Artificial Intelligence (AI) in crop monitoring refers to the use of advanced algorithms, machine learning models, and data analytics to analyze agricultural data and optimize crop management. By integrating satellite imagery, drone surveillance, and IoT-based sensors, AI enables real-time monitoring of crop health, soil conditions, pest infestations, and weather patterns. It helps farmers make data-driven decisions on irrigation, fertilization, and harvesting, improving productivity and sustainability. AI-powered predictive analytics also forecast yield outcomes and detect early signs of stress or disease, minimizing losses and enhancing overall farm efficiency while promoting precision agriculture practices.

Market Dynamics:

Driver:

Improved yield prediction & decision-making

Farmers use AI models to analyze soil health weather patterns and crop stress for timely interventions and resource optimization. Platforms support multispectral imaging sensor fusion and predictive analytics across field-level and regional deployments. Integration with satellite data drone imagery and agronomic databases enhance accuracy and responsiveness. Demand for data-driven and precision-focused tools is

rising across commercial farms cooperatives and agtech startups. These dynamics are propelling platform deployment across yield-centric and sustainability-driven agriculture ecosystems.

Restraint:

High upfront cost & unclear ROI for small farms

Many growers lack access to capital technical expertise or digital infrastructure to adopt AI-based solutions. Enterprises face challenges in demonstrating cost-effectiveness and long-term value across low-acreage and subsistence farming models. Lack of localized data and tailored algorithms further complicates performance and trust. Vendors must offer modular pricing mobile-first interfaces and region-specific training to improve uptake. These constraints continue to hinder platform maturity across smallholder and resource-constrained farming segments.

Opportunity:

Advances in ML and edge computing

Models process sensor data locally to reduce latency bandwidth and cloud dependency across remote and high-volume farms. Platforms support anomaly detection disease prediction and irrigation optimization using lightweight and scalable architectures. Integration with IoT devices mobile apps and low-power processors enhances accessibility and field-level deployment. Demand for adaptive resilient and offline-capable solutions is rising across emerging markets and infrastructure-limited geographies. These trends are fostering growth across edge-enabled and ML-driven crop monitoring platforms.

Threat:

Model transferability & complexity

AI models trained on specific soil climate and crop conditions may underperform when applied to new regions or farming systems. Enterprises face challenges in balancing generalization with precision across heterogeneous agricultural environments. Lack of standardized datasets explainability and agronomic validation degrades trust and adoption. Vendors must invest in federated learning domain adaptation and farmer-centric design to improve model robustness. These limitations continue to constrain

platform reliability across dynamic and data-scarce crop monitoring contexts.

Covid-19 Impact:

The pandemic disrupted agricultural supply chains field operations and extension services while accelerating digital transformation across crop monitoring. Lockdowns delayed planting harvesting and input delivery while increasing demand for remote sensing and autonomous monitoring. AI platforms scaled rapidly to support disease detection yield forecasting and input optimization across mobile and satellite channels. Investment in cloud infrastructure drone deployment and digital agronomy surged across governments cooperatives and agtech firms. Public awareness of food security and climate resilience increased across policy and consumer circles. These shifts are reinforcing long-term investment in AI-enabled and digitally resilient crop monitoring infrastructure.

The internet of things (IoT) segment is expected to be the largest during the forecast period

The internet of things (IoT) segment is expected to account for the largest market share during the forecast period due to its versatility scalability and integration potential across crop monitoring workflows. Platforms use sensors drones and imaging devices to collect real-time data on soil moisture plant health and weather conditions. Integration with AI engines cloud dashboards and mobile apps enhances decision-making and operational control. Demand for interoperable low-power and field-hardened devices is rising across precision agriculture and smart farming initiatives. Vendors offer plug-and-play kits predictive alerts and lifecycle analytics to support farm-level deployment. These capabilities are boosting segment dominance across IoT-enabled crop monitoring platforms.

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

Over the forecast period, the yield forecasting segment is predicted to witness the highest growth rate as AI platforms expand across predictive agronomy and harvest planning. Models use historical data weather inputs and crop imagery to estimate output and optimize logistics procurement and pricing. Platforms support multi-season analysis real-time updates and risk modeling tailored to crop type and geography. Integration with supply chain systems market dashboards and insurance platforms enhances value and stakeholder alignment. Demand for scalable accurate and regionally adapted

forecasting tools is rising across cooperatives agribusinesses and government programs. These dynamics are accelerating growth across yield-focused Digital Crop Intelligence platforms.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to its agtech maturity infrastructure readiness and institutional investment across AI in agriculture. Enterprises deploy platforms across row crops specialty produce and greenhouse operations to improve yield sustainability and compliance. Investment in drone networks edge computing and agronomic modeling supports scalability and innovation. Presence of leading vendors' research institutions and policy frameworks drives ecosystem depth and adoption. Firms align crop monitoring strategies with USDA mandates ESG goals and climate adaptation programs.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR as population pressure climate volatility and digital agriculture converge across regional economies. Countries like India China Indonesia and Vietnam scale platforms across rice wheat and horticulture segments. Government-backed programs support digital extension services smart irrigation and AI incubation across farming communities. Local providers offer mobile-first multilingual and culturally adapted solutions tailored to smallholder and cooperative needs. Demand for scalable inclusive and climate-resilient crop monitoring infrastructure is rising across urban and rural agricultural zones. These trends are accelerating regional growth across Asia Pacific's AI in agriculture innovation and deployment.

Key players in the market

Some of the key players in Digital Crop Intelligence Market include FlyPix AI, Prospera Technologies Ltd., Taranis Inc., Agremo d.o.o., Gamaya SA, CropX Technologies Ltd., PEAT GmbH (Plantix), OneSoil Inc., Skyx Ltd., Resson Aerospace Corporation, Farmwave Inc., AgriTask Ltd., Ceres Imaging Inc., Sentra Inc. and PrecisionHawk Inc.

Key Developments:

In October 2024, Taranis entered a three-year strategic partnership with Syngenta Crop

Protection to deliver AI-powered agronomy solutions to agricultural retailers across the U.S. The collaboration combined Taranis' drone-based scouting and generative AI recommendations with Syngenta's agronomic support, enabling leaf-level insights and precision product selection for growers.

In May 2021, Prospera Technologies was acquired by Valmont Industries Inc., a global leader in irrigation and infrastructure. The acquisition aimed to combine Prospera's computer vision and machine learning tools with Valmont's pivot irrigation systems, creating a unified platform for real-time crop health monitoring and resource optimization.

Offerings Covered:

Hardware

Software

Services

Crop Types Covered:

Cereals & Grains

Fruits & Vegetables

Oilseeds & Pulses

Other Crop Types

Deployment Modes Covered:

Cloud-Based

On-Premises

Technologies Covered:

Artificial Intelligence (AI)

Machine Learning (ML)

Internet of Things (IoT)

Big Data Analytics

Geospatial and Remote Sensing

Other Technologies

Applications Covered:

Crop Health Monitoring

Yield Forecasting

Pest & Disease Detection

Soil & Nutrient Analysis

Other Applications

End Users Covered:

Agricultural Cooperatives

Research Institutions

Government Agencies

Agri-Tech Companies

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

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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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