

Crop Yield Prediction Market Forecasts to 2034 – Global Analysis By Solution Type (Yield Monitoring Solutions, Crop Forecasting Platforms, Field Analytics Solutions, Farm Data Management Solutions and Other Solution Types), Component, Technology, Application, End User, and By Geography

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Abstracts

According to Statistics MRC, the Global Crop Yield Prediction Market is accounted for \$4.9 billion in 2026 and is expected to reach \$17.6 billion by 2034 growing at a CAGR of 17.2% during the forecast period. Crop yield prediction involves the use of data analytics, artificial intelligence, machine learning, and remote sensing technologies to estimate agricultural output before harvest. These systems analyze factors such as soil conditions, weather patterns, crop health, irrigation, and historical productivity data to generate accurate yield forecasts. Yield prediction enables farmers, agribusinesses, and policymakers to improve supply chain planning, risk management, and resource allocation. The technology also supports precision farming by identifying potential productivity issues early in the growing cycle. Growing digitalization in agriculture is accelerating adoption of predictive yield analytics solutions worldwide.

Market Dynamics:

Driver:

Need for production optimization

The agricultural carbon credit market is being propelled by the global push toward carbon neutrality. Governments, corporations, and farmers are increasingly committing

to net-zero targets. Sustainable farming practices are being incentivized through carbon credit programs. These credits provide farmers with additional income streams while promoting eco-friendly agriculture. Awareness campaigns are spreading knowledge about the benefits of carbon-neutral farming. Partnerships between agritech firms and carbon trading platforms are expanding rapidly.

Restraint:

Inconsistent agricultural data availability

A major restraint is the limited awareness among farmers about carbon credit opportunities. Many farmers lack knowledge of eligibility criteria and program processes. Complex documentation discourages small-scale farmers from participating. Limited access to advisory services slows adoption in rural regions. Infrastructure gaps hinder smooth integration into carbon markets. Governments and NGOs are working to improve awareness through training and outreach.

Opportunity:

Satellite imagery integration advancements

Blockchain ensures transparency and traceability of carbon credits. Farmers can securely record and verify sustainable practices. Digital platforms simplify participation in carbon markets. Partnerships between blockchain firms and agricultural companies are driving innovation. Affordable blockchain solutions can attract small and mid-sized farms. This opportunity is expected to accelerate growth in carbon credit adoption.

Threat:

Unpredictable climatic condition changes

Fluctuations in global carbon markets reduce predictability for farmers. Price instability discourages long-term investments in sustainable practices. Smaller farmers are particularly vulnerable to market volatility. Regulatory uncertainty adds further challenges. Negative publicity around carbon trading can reduce trust. This volatility creates barriers to mainstream adoption of agricultural carbon credits.

Covid-19 Impact:

Covid-19 had a mixed impact on the agricultural carbon credit market. On one hand, demand rose as sustainability became a priority during the pandemic. Farmers sought alternative income sources through carbon credits. Online platforms supported participation despite restrictions. On the other hand, supply chain disruptions affected verification processes. Economic uncertainty limited investments in advanced sustainability practices. Preventive health awareness increased focus on eco-friendly farming.

The yield monitoring solutions segment is expected to be the largest during the forecast period

The yield monitoring solutions segment is expected to account for the largest market share during the forecast period as farmers increasingly adopt soil management practices to generate credits. Soil carbon credits provide measurable and verifiable outcomes. Governments are supporting soil carbon initiatives through subsidies. Retail penetration of soil carbon programs is strong in developed markets. Farmers prefer soil credits for cost savings and productivity benefits. Agritech firms are investing in soil monitoring technologies.

The weather impact analysis segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the weather impact analysis segment is predicted to witness the highest growth rate due to rising demand for long-term carbon storage solutions. Sequestration practices enhance soil health and resilience. Farmers benefit from improved crop yields alongside carbon credits. Younger demographics are adopting regenerative farming practices rapidly. Digital platforms promote awareness of sequestration benefits. Governments are supporting sequestration through climate policies.

Region with largest share:

During the forecast period, the Europe region is expected to hold the largest market share owing to strong consumer awareness and advanced sustainability frameworks. European markets have established carbon trading systems. Leading agritech firms and research institutions are headquartered in this region. Government initiatives promote carbon-neutral agriculture. Retail penetration of carbon credit programs is strong in countries such as Germany, France, and the UK. Farmers are willing to invest in premium sustainability solutions. Europe will remain the largest contributor to global

revenue.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR driven by rising disposable incomes and growing agricultural modernization. Urbanization and food security concerns are fueling demand for carbon credits. Countries such as China, India, and Japan are adopting carbon-neutral farming rapidly. E-commerce platforms support distribution of sustainability solutions. Government subsidies encourage adoption in rural areas. Affordable carbon credit programs appeal to mass farmers. Asia Pacific will be the fastest-growing region globally.

Key players in the market

Some of the key players in Crop Yield Prediction Market include IBM Corporation, Trimble Inc., Deere & Company, Climate LLC, Corteva Agriscience, SAP SE, Hexagon AB, Fujitsu Limited, Planet Labs PBC, Descartes Labs, Inc., Taranis, Prospera Technologies, aWhere, Inc., Granular, Inc. and Ag Leader Technology.

Key Developments:

In May 2026, Planet Labs PBC reported an enhanced data fusion partnership with the ESA to strengthen its advanced "Crop Biomass" tracking architecture. This collaborative effort blends microwave data from Sentinel-1 satellites with PlanetScope's optical images to build cloud-free daily biomass estimations, allowing agrifood companies to bypass weather disruptions and model upcoming crop yields with unprecedented temporal precision.

In August 2025, Taranis announced an expanded strategic partnership with prominent North American ag retailers to deploy its AI-driven "AcreForward" intelligence platform. This collaborative initiative captures leaf-level leaf imagery via high-speed drones to predict final crop yields, allowing retail agronomists to deliver personalized, real-time input adjustments that safeguard grower profit margins against unexpected pest and nutrient stress.

Solution Types Covered:

Yield Monitoring Solutions

Crop Forecasting Platforms

Field Analytics Solutions

Farm Data Management Solutions

Other Solution Types

Components Covered:

Software

Hardware

Services

Sensors & Imaging Devices

Other Components

Technologies Covered:

Artificial Intelligence

Machine Learning

Remote Sensing

Big Data Analytics

GIS & GPS Technologies

Other Technologies

Applications Covered:

Crop Health Monitoring

Yield Forecasting

Precision Farming

Weather Impact Analysis

Resource Optimization

Other Applications

End Users Covered:

Commercial Farms

Agricultural Enterprises

Government Agencies

Research Institutions

Other End Users

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of 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 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- 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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