

Crop Protection Equipment Market Forecasts to 2032 - Global Analysis By Equipment Type (Sprayers, Dusters, Foggers / Mist Blowers, Traps & Spreaders, Seed Treatment Systems, and Other Equipment Types), Crop Type, Power Source, Distribution Channel, Application, End User and By Geography

<https://marketpublishers.com/r/C08AC6791E1CEN.html>

Date: January 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: C08AC6791E1CEN

Abstracts

According to Statistics MRC, the Global Crop Protection Equipment Market is accounted for \$68.86 billion in 2025 and is expected to reach \$112.77 billion by 2032 growing at a CAGR of 7.3% during the forecast period. Crop protection equipment comprises specialized farm devices used to safeguard crops against insects, weeds, pathogens, and adverse growing conditions. It includes technologies such as spraying systems, seed treatment machines, fogging units, and weed control implements that enable accurate delivery of chemical and biological crop protection solutions. These tools help farmers optimize input usage, minimize environmental impact, and maintain worker safety. Effective crop protection equipment supports healthier crops, higher yields, and consistent produce quality while promoting efficient and sustainable agricultural practices.

According to the Royal Society of Chemicals, about 800 chemically active ingredients are registered for use as crop protection solutions worldwide. These chemicals are broadly categorized into herbicides, fungicides, and insecticides groups.

Market Dynamics:

Driver:

Shift toward precision agriculture

Farmers are increasingly relying on data-driven farming practices to optimize pesticide application and minimize input wastage. Technologies such as GPS-guided machinery, variable-rate sprayers, and sensor-based systems are improving application accuracy across large and small farms. Precision tools enable targeted spraying, reducing chemical runoff and environmental impact. Rising awareness of sustainable farming practices is further supporting the adoption of modern crop protection solutions. Government initiatives promoting smart farming are accelerating technology penetration. As farm profitability becomes closely linked to efficiency, precision agriculture continues to reshape equipment demand.

Restraint:

Technical complexity & skill gaps

The increasing sophistication of crop protection equipment presents notable challenges related to technical complexity and workforce capability. Advanced machinery often requires specialized training for calibration, maintenance, and operation. Small and marginal farmers face difficulties in adopting such equipment due to limited technical expertise. Lack of access to training programs and digital literacy further restricts widespread adoption. Equipment downtime and improper usage can reduce operational efficiency and increase costs. Manufacturers must invest in user-friendly designs and after-sales support to address these concerns.

Opportunity:

Adoption of agricultural drones (UAVs)

UAVs enable precise aerial spraying, crop monitoring, and real-time field analysis. These systems are especially valuable in difficult terrains and large-scale farming operations. Drone-based spraying reduces labor dependency while improving coverage efficiency and accuracy. Regulatory frameworks in several countries are becoming more supportive of commercial drone usage in agriculture. Integration of AI and imaging technologies is enhancing pest and disease detection capabilities. As operational costs decline, drone adoption is expected to accelerate across emerging and developed markets.

Threat:

Volatility in commodity prices

Changes in crop prices directly influence farmers' purchasing power and capital investment decisions. During periods of low commodity prices, spending on advanced equipment is often postponed. This uncertainty affects demand cycles for crop protection machinery manufacturers. Input cost inflation further compounds financial pressure on farming communities. Equipment suppliers face challenges in forecasting sales and managing inventories effectively. Sustained price volatility may slow modernization efforts in cost-sensitive agricultural regions.

Covid-19 Impact:

The COVID-19 pandemic disrupted global supply chains and agricultural operations, impacting the crop protection equipment market. Manufacturing shutdowns and logistics constraints delayed equipment deliveries during peak farming seasons. Labor shortages increased reliance on mechanized solutions, partially offsetting initial demand slowdowns. Farmers prioritized essential inputs, delaying investments in non-critical equipment upgrades. However, the pandemic highlighted the importance of automation and contactless farming solutions. Digital platforms for equipment sales and remote servicing gained traction during this period. Post-pandemic recovery strategies now emphasize resilience, localization, and technology-enabled farming practices.

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

The sprayers segment is expected to account for the largest market share during the forecast period. Sprayers are essential for applying pesticides, herbicides, and fertilizers across diverse crop types. Their widespread usage in both small-scale and commercial farming supports strong demand. Technological advancements such as automated nozzles and precision control systems are improving spraying efficiency. Farmers prefer sprayers due to their versatility and compatibility with multiple crop protection chemicals. Increasing adoption of self-propelled and tractor-mounted sprayers is enhancing operational productivity.

The contract farming services segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the contract farming services segment is predicted to witness the highest growth rate, due to rising demand for professional farm management and

mechanized services. Contract service providers offer cost-effective access to advanced crop protection equipment. This model reduces upfront capital investment for small and medium-sized farmers. Increasing farm consolidation is also supporting demand for outsourced spraying and protection services. Technology-enabled service platforms are improving efficiency and service reach.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, due to rapid population growth is intensifying the need for higher agricultural productivity. Countries such as China, India, and Australia are investing heavily in farm mechanization. Government subsidies and modernization programs are accelerating equipment adoption. Rising awareness of crop loss prevention is boosting demand for spraying and protection solutions. Expanding commercial farming activities are further strengthening regional growth.

Region with highest CAGR:

Over the forecast period, the Middle East & Africa region is anticipated to exhibit the highest CAGR, owing to increasing focus on food security is driving investment in modern agricultural practices. Water scarcity is encouraging efficient and targeted crop protection methods. Governments are promoting mechanization to improve crop yields in arid and semi-arid regions. Growth in commercial farming and agribusiness ventures is supporting equipment demand. International partnerships are facilitating technology transfer and market expansion. As infrastructure improves, the region is emerging as a high-growth market for crop protection equipment.

Key players in the market

Some of the key players in Crop Protection Equipment Market include John Deere, EXEL Industries, AGCO Corporation, Amazone, CNH Industrial, Kuhn Group, Kubota Corporation, Great Plains, Mahindra, Horsch Maschinen, CLAAS KGaA, Kverneland, Yanmar Co., Bucher Industries, and SAME Deutz-Fahr.

Key Developments:

In December 2025, Deere & Company entered into an agreement to acquire Tenna, a construction technology company, and a holding of The Conti Group, that offers mixed-fleet equipment operations and asset tracking solutions. The platform gives contractors

a near real-time, full-picture view of their equipment operations and a greater understanding of equipment trends and maintenance needs, while also improving visibility, planning, and jobsite coordination to increase productivity and reduce costs.

In September 2025, AGCO announced its signing of a Virtual Power Purchase Agreement (VPPA) in partnership with BRUC, one of the largest renewable energy groups in Spain. The agreement marks a significant milestone in AGCO's renewable energy strategy and helps reduce its Scope 2 greenhouse gas emissions relating to its indirect onsite purchased electricity.

Equipment Types Covered:

Sprayers

Dusters

Foggers / Mist Blowers

Traps & Spreaders

Seed Treatment Systems

Other Equipment Types

Crop Types Covered:

Cereal & Grains

Oilseeds & Pulses

Fruits & Vegetables

Turf & Ornamentals

Other Crop Types

Power Sources Covered:

Manual

Battery-Operated / Electric

Fuel-Powered

Hybrid / Solar-Enabled Systems

Distribution Channels Covered:

Offline

Online

OEM Sales

Applications Covered:

Agriculture

Horticulture

Forestry

Greenhouse / Controlled Environment

Other Applications

End Users Covered:

Large-scale Commercial Farms

Contract Farming Services

Smallholder Farmers

Institutional Buyers

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 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

Contents

1 EXECUTIVE SUMMARY

2 PREFACE

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
 - 2.4.1 Data Mining
 - 2.4.2 Data Analysis
 - 2.4.3 Data Validation
 - 2.4.4 Research Approach
- 2.5 Research Sources
 - 2.5.1 Primary Research Sources
 - 2.5.2 Secondary Research Sources
 - 2.5.3 Assumptions

3 MARKET TREND ANALYSIS

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Application Analysis
- 3.7 End User Analysis
- 3.8 Emerging Markets
- 3.9 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

5 GLOBAL CROP PROTECTION EQUIPMENT MARKET, BY EQUIPMENT TYPE

- 5.1 Introduction
- 5.2 Sprayers
- 5.3 Dusters
- 5.4 Foggers / Mist Blowers
- 5.5 Traps & Spreaders
- 5.6 Seed Treatment Systems
- 5.7 Other Equipment Types

6 GLOBAL CROP PROTECTION EQUIPMENT MARKET, BY CROP TYPE

- 6.1 Introduction
- 6.2 Cereal & Grains
- 6.3 Oilseeds & Pulses
- 6.4 Fruits & Vegetables
- 6.5 Turf & Ornamentals
- 6.6 Other Crop Types

7 GLOBAL CROP PROTECTION EQUIPMENT MARKET, BY POWER SOURCE

- 7.1 Introduction
- 7.2 Manual
- 7.3 Battery-Operated / Electric
- 7.4 Fuel-Powered
- 7.5 Hybrid / Solar-Enabled Systems

8 GLOBAL CROP PROTECTION EQUIPMENT MARKET, BY DISTRIBUTION CHANNEL

- 8.1 Introduction
- 8.2 Offline
 - 8.2.1 Dealers
 - 8.2.2 Retail Stores
 - 8.2.3 Distributors
- 8.3 Online
 - 8.3.1 E-commerce
- 8.4 OEM Sales

9 GLOBAL CROP PROTECTION EQUIPMENT MARKET, BY APPLICATION

- 9.1 Introduction
- 9.2 Agriculture
- 9.3 Horticulture
- 9.4 Forestry
- 9.5 Greenhouse / Controlled Environment
- 9.6 Other Applications

10 GLOBAL CROP PROTECTION EQUIPMENT MARKET, BY END USER

- 10.1 Introduction
- 10.2 Large-scale Commercial Farms
- 10.3 Contract Farming Services
- 10.4 Smallholder Farmers
- 10.5 Institutional Buyers
- 10.6 Other End Users

11 GLOBAL CROP PROTECTION EQUIPMENT MARKET, BY GEOGRAPHY

- 11.1 Introduction
- 11.2 North America
 - 11.2.1 US
 - 11.2.2 Canada
 - 11.2.3 Mexico
- 11.3 Europe
 - 11.3.1 Germany
 - 11.3.2 UK
 - 11.3.3 Italy
 - 11.3.4 France
 - 11.3.5 Spain
 - 11.3.6 Rest of Europe
- 11.4 Asia Pacific
 - 11.4.1 Japan
 - 11.4.2 China
 - 11.4.3 India
 - 11.4.4 Australia
 - 11.4.5 New Zealand
 - 11.4.6 South Korea

- 11.4.7 Rest of Asia Pacific
- 11.5 South America
 - 11.5.1 Argentina
 - 11.5.2 Brazil
 - 11.5.3 Chile
 - 11.5.4 Rest of South America
- 11.6 Middle East & Africa
 - 11.6.1 Saudi Arabia
 - 11.6.2 UAE
 - 11.6.3 Qatar
 - 11.6.4 South Africa
 - 11.6.5 Rest of Middle East & Africa

12 KEY DEVELOPMENTS

- 12.1 Agreements, Partnerships, Collaborations and Joint Ventures
- 12.2 Acquisitions & Mergers
- 12.3 New Product Launch
- 12.4 Expansions
- 12.5 Other Key Strategies

13 COMPANY PROFILING

- 13.1 John Deere
- 13.2 EXEL Industries Group
- 13.3 AGCO Corporation
- 13.4 Amazone H. Dreyer GmbH & Co. KG
- 13.5 CNH Industrial N.V.
- 13.6 Kuhn Group
- 13.7 Kubota Corporation
- 13.8 Great Plains Manufacturing, Inc.
- 13.9 Mahindra & Mahindra Ltd.
- 13.10 Horsch Maschinen GmbH
- 13.11 CLAAS KGaA mbH
- 13.12 Kverneland Group
- 13.13 Yanmar Co., Ltd.
- 13.14 Bucher Industries AG
- 13.15 SAME Deutz-Fahr Group

List Of Tables

LIST OF TABLES

Table 1 Global Crop Protection Equipment Market Outlook, By Region (2024-2032) (\$MN)

Table 2 Global Crop Protection Equipment Market Outlook, By Equipment Type (2024-2032) (\$MN)

Table 3 Global Crop Protection Equipment Market Outlook, By Sprayers (2024-2032) (\$MN)

Table 4 Global Crop Protection Equipment Market Outlook, By Dusters (2024-2032) (\$MN)

Table 5 Global Crop Protection Equipment Market Outlook, By Foggers / Mist Blowers (2024-2032) (\$MN)

Table 6 Global Crop Protection Equipment Market Outlook, By Traps & Spreaders (2024-2032) (\$MN)

Table 7 Global Crop Protection Equipment Market Outlook, By Seed Treatment Systems (2024-2032) (\$MN)

Table 8 Global Crop Protection Equipment Market Outlook, By Other Equipment Types (2024-2032) (\$MN)

Table 9 Global Crop Protection Equipment Market Outlook, By Crop Type (2024-2032) (\$MN)

Table 10 Global Crop Protection Equipment Market Outlook, By Cereal & Grains (2024-2032) (\$MN)

Table 11 Global Crop Protection Equipment Market Outlook, By Oilseeds & Pulses (2024-2032) (\$MN)

Table 12 Global Crop Protection Equipment Market Outlook, By Fruits & Vegetables (2024-2032) (\$MN)

Table 13 Global Crop Protection Equipment Market Outlook, By Turf & Ornamentals (2024-2032) (\$MN)

Table 14 Global Crop Protection Equipment Market Outlook, By Other Crop Types (2024-2032) (\$MN)

Table 15 Global Crop Protection Equipment Market Outlook, By Power Source (2024-2032) (\$MN)

Table 16 Global Crop Protection Equipment Market Outlook, By Manual (2024-2032) (\$MN)

Table 17 Global Crop Protection Equipment Market Outlook, By Battery-Operated / Electric (2024-2032) (\$MN)

Table 18 Global Crop Protection Equipment Market Outlook, By Fuel-Powered

(2024-2032) (\$MN)

Table 19 Global Crop Protection Equipment Market Outlook, By Hybrid / Solar-Enabled Systems (2024-2032) (\$MN)

Table 20 Global Crop Protection Equipment Market Outlook, By Distribution Channel (2024-2032) (\$MN)

Table 21 Global Crop Protection Equipment Market Outlook, By Offline (2024-2032) (\$MN)

Table 22 Global Crop Protection Equipment Market Outlook, By Dealers (2024-2032) (\$MN)

Table 23 Global Crop Protection Equipment Market Outlook, By Retail Stores (2024-2032) (\$MN)

Table 24 Global Crop Protection Equipment Market Outlook, By Distributors (2024-2032) (\$MN)

Table 25 Global Crop Protection Equipment Market Outlook, By Online (2024-2032) (\$MN)

Table 26 Global Crop Protection Equipment Market Outlook, By E-commerce (2024-2032) (\$MN)

Table 27 Global Crop Protection Equipment Market Outlook, By OEM Sales (2024-2032) (\$MN)

Table 28 Global Crop Protection Equipment Market Outlook, By Application (2024-2032) (\$MN)

Table 29 Global Crop Protection Equipment Market Outlook, By Agriculture (2024-2032) (\$MN)

Table 30 Global Crop Protection Equipment Market Outlook, By Horticulture (2024-2032) (\$MN)

Table 31 Global Crop Protection Equipment Market Outlook, By Forestry (2024-2032) (\$MN)

Table 32 Global Crop Protection Equipment Market Outlook, By Greenhouse / Controlled Environment (2024-2032) (\$MN)

Table 33 Global Crop Protection Equipment Market Outlook, By Other Applications (2024-2032) (\$MN)

Table 34 Global Crop Protection Equipment Market Outlook, By End User (2024-2032) (\$MN)

Table 35 Global Crop Protection Equipment Market Outlook, By Large-scale Commercial Farms (2024-2032) (\$MN)

Table 36 Global Crop Protection Equipment Market Outlook, By Contract Farming Services (2024-2032) (\$MN)

Table 37 Global Crop Protection Equipment Market Outlook, By Smallholder Farmers (2024-2032) (\$MN)

Table 38 Global Crop Protection Equipment Market Outlook, By Institutional Buyers
(2024-2032) (\$MN)

Table 39 Global Crop Protection Equipment Market Outlook, By Other End Users
(2024-2032) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East &
Africa Regions are also represented in the same manner as above.

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