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Drone-Assisted Agricultural Pest Release Market Forecasts to 2032 – Global Analysis By Pest Type (Biological Control Agents, Sterile Insect Technique (SIT), Mating Disruption, Predators, and Other Pest Types), Drone Type, Payload Type, Deployment Mode, Application, End User and By Geography

https://marketpublishers.com/r/DBEDCEE952D2EN.html
Date: August 2025
Pages: 200
Price: US$ 4,150.00 (Single User License)
ID: DBEDCEE952D2EN

Abstracts

According to Stratistics MRC, the Global Drone-Assisted Agricultural Pest Release Market is accounted for $558.23 million in 2025 and is expected to reach $2083.38 million by 2032 growing at a CAGR of 20.7% during the forecast period. Drone-Assisted Agricultural Pest Release is a modern farming technique where drones are used to release beneficial insects, such as parasitoids or predators, over crop fields to control harmful pests. This method enhances precision, efficiency, and coverage, reducing the need for chemical pesticides. It supports sustainable agriculture by promoting natural pest control, improving crop health, and minimizing environmental impact. Drones ensure targeted application, saving time, labor, and resources in pest management.

Market Dynamics:

Driver:

Rising demand for sustainable farming

Drone-assisted pest release offers a non-chemical approach to pest control, minimizing the ecological footprint of farming. These systems support organic farming by deploying biological agents precisely and efficiently. Regulatory bodies across major agricultural economies are promoting green farming solutions, accelerating market growth. Farmers

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are also adopting drone technology to meet eco-certification standards and access premium markets. Technological advancements in drone software and hardware are making these systems more robust and scalable. As sustainability becomes a central focus, drone-assisted pest release emerges as a key driver in transforming pest management.

Restraint:

Limited technical knowledge

Many agricultural workers lack sufficient training to operate drone systems and interpret their data. The complexity of drone maintenance and flight programming creates barriers, especially in remote and under-resourced areas. Initiatives to promote digital literacy in agriculture are still in early stages and have uneven reach. Smallholder farmers often face difficulty accessing support infrastructure like repair services and skilled technicians. Language barriers and unfamiliar interfaces may further reduce comfort levels with these technologies. Without widespread training programs, technical limitations will continue to restrain market expansion.

Opportunity:

Integration with smart farming systems

Data from IoT sensors and satellites can guide drones for timely and targeted pest release. Cloud-based platforms allow farmers to remotely plan, monitor, and analyze pest control operations. This enhances precision and helps reduce overuse of biological agents, improving environmental outcomes. The feedback loop created between sensors and drones enables real-time adjustments, increasing responsiveness. As automation becomes more mainstream in agriculture, drones are being positioned as central tools in these ecosystems.

Threat:

High initial investment costs

The cost of implementing drone-assisted pest release systems can be prohibitively high for many farmers. Besides the drone itself, expenses include software licenses, batteries, payload equipment, and training. These costs are particularly challenging for small-scale farmers and cooperatives in developing countries. Frequent upgrades and

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maintenance add to operational expenditures, making long-term affordability uncertain. Public-private partnerships and government incentives are being explored to address this issue. Nevertheless, high initial investment remains a key threat to widespread market adoption and scalability.

Covid-19 Impact

The COVID-19 pandemic disrupted global agricultural operations, affecting access to drone technology and training resources. Travel restrictions and lockdowns delayed drone deliveries and in-person demonstrations. Despite these challenges, the crisis highlighted the value of automation in maintaining productivity during disruptions. Farmers and suppliers began investing in contactless solutions, including pest-release drones, to reduce human exposure. Post-pandemic recovery plans prioritized resilient and tech-enabled agriculture, boosting market interest. Digital outreach and remote training platforms became more prominent, accelerating technology dissemination.

The multirotor drones segment is expected to be the largest during the forecast period

The multirotor drones segment is expected to account for the largest market share during the forecast period, due to the growing adoption of multirotor drones due to their precision, maneuverability, and ease of use. These drones enable targeted pest release, reducing labor costs and enhancing crop protection efficiency. Technological advancements, increased demand for sustainable farming practices, and government support for precision agriculture further propel market growth. Multirotor drones' ability to operate in varied terrains makes them ideal for diverse agricultural landscapes.

The agricultural cooperatives segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the agricultural cooperatives segment is predicted to witness the highest growth rate, due to collective resource sharing and increased access to technology. Cooperatives facilitate group purchasing of drones and training programs, reducing the financial burden on individual farmers. They serve as hubs for education, coordination, and pilot programs, speeding up technology adoption. Government funding and NGO partnerships often prioritize cooperatives for sustainable farming initiatives. These groups also enable bulk implementation across large tracts of land, improving drone deployment efficiency.

Region with largest share:

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During the forecast period, the Asia Pacific region is expected to hold the largest market share due to its vast agricultural base and growing tech adoption. Countries such as India, China, and Indonesia are rapidly implementing drone solutions to address pest challenges. Government programs supporting precision farming and smart agriculture boost the regional uptake of pest release drones. A strong manufacturing base and affordable local supply chains make drone equipment more accessible. The region's diverse cropping systems also require versatile and adaptable pest control methods.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, owing to its strong innovation ecosystem and regulatory support. Farmers are increasingly adopting drones to meet sustainability goals and optimize pest management operations. Public awareness and consumer demand for organic produce are fueling interest in biological pest control. Research institutions and agri-tech start-ups are developing advanced drone systems tailored for regional crop needs. Government grants and streamlined licensing processes are lowering the barriers to drone adoption.

Key players in the market

Some of the key players profiled in the Drone-Assisted Agricultural Pest Release Market includeDa-Jiang Innovations, Koppert Biological Systems, Garuda Aerospace, UAV-IQ, Sentera, XAG Co., Ltd., DroneDeploy, Trimble Inc., Marut Drones, Yamaha Motor Co., Ltd., Rantizo, AgEagle Aerial Systems Inc., AeroVironment Inc., Parrot Drone SAS, and PrecisionHawk.

Key Developments:

In June2025, Koppert and Amo?ba, an industrial greentech specialized in natural microbiological solutions based on the patented use of amoebae, are pleased to announce the signing of a significant commercial agreement. This agreement focuses on the innovative biofungicide solution created by Amo?ba and follows the recent approval of Amo?ba'sbiocontrol active substance by the European Union Member States. The launch is expected early 2026.

In April 2025, Garuda Aerospace announced new partnerships with Titan Innovations, Easy Aerial, Azur Drones, Aero Sentinel, and Securiton for nationwide distribution of

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their units across security, infrastructure, and defense applications. After they announced aggressive expansion efforts in June, this major increase in Indian distribution for these international companies comes in the wake of India’s recent decision to ban DJI drones amidst rising tensions between the Indian and Chinese governments.

Pest Types Covered:

- Biological Control Agents
- Sterile Insect Technique (SIT)
- Mating Disruption
- Predators
- Other Pest Types

Drone Types Covered:

- Multirotor Drones
- Fixed-Wing Drones
- Hybrid Drones

Payload Types Covered:

- Manual Loading Mechanism
- Biodegradable Pod Dispensers
- Automated Dispenser Systems
- Single/Insect Capsule Release Systems

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Deployment Modes Covered:

- Contract-Based Services
- Farmer-Owned Drone Use
- Third-Party Biocontrol Delivery Firms

Applications Covered:

- Field Crops
- Horticultural Crops
- Greenhouses
- Forestry
- Orchards
- Specialty Crops
- Other Applications

End Users Covered:

- Commercial Farmers
- Agricultural Cooperatives
- Biocontrol Companies
- Agri-tech Startups
- Government & Research Institutions
- Drone Service Providers

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- 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

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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

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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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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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