

Agricultural Drones: Markets Reach \$ 3.6 billion by 2022

LEXINGTON, Massachusetts (April 4, 2016) – WinterGreen Research announces that it has published a new study *Agricultural Drones: Market Shares, Strategy, and Forecasts, Worldwide, 2016 to 2022*. The 2016 study has 288 pages, 127 tables and figures. Worldwide agricultural drone markets are poised to achieve significant growth with the use of cameras on stable flying platforms that are used to help implement precision farming. Crop visualization lets farmers better control and isolate areas for spraying and lets the drones do the spraying.

Agricultural drones use automated process to make farming more productive. Drones provide better, more flexible visualization. Smart drone agricultural uses cameras and provide the prospect of trillions of dollars in farming economic growth. Smart commercial drones connect seamlessly and securely to the Internet and to each other.

Agricultural drone technology has reached a level of maturity that has put these systems at the forefront of farming modernization. Farmers around the entire world are adapting to drone availability, using aerial cameras to visualize plants. Use cases are evolving rapidly. Video, specialized video, targeted video, and agricultural spraying systems are offered.

Agricultural Drones Use Technology for Spraying, Mapping, Pest Control, Seeding, Remote Sensing, and Precision Agriculture

Agricultural technology uses drones to leverage a data-driven future. Inexpensive sensors, cloud computing and intelligent software used in a drone system hold the potential to transform agriculture and help feed the world's growing population. Venture investment in agricultural drones has been strong. Investment of venture capital in agricultural technology start-ups reached \$2.06 billion in the first half of 2015, 4.25 billion in 2015 doubling the amount of capital invested in this area in 2014. Agricultural drones leverage the Internet of things (IoT). IoT brings sensors to supplement images of the land from above, making it possible to communicate and use analytics to understand changes in vegetation.



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Digital electronics brings significant change to the ancient manual processes of farming. Markets portend to reach multitrillion-dollar payoff from the emerging technology that increases the production and distribution of food. There are technical and policy issues to leverage the potential of the drone use of the Internet of Things (IoT). Challenges include security, privacy and standards. Hackers can enter apparently secure networks to remotely control engines, brakes and steering. This could create a problem on a farm if the network was hacked.

Agricultural industrialization has been brought in some measure by tractors and combines. Drones bring far greater automated process. Preindustrial agriculture, dating from before Christ to about 1920, consisted of labor-intensive, essentially subsistence farming on small farms. This took two acres to feed one person. With industrial agriculture, from 1920 to 2010, tractors and combine harvesters, chemical fertilizers and seed science opened commercialization of farms. Gains in productivity achieved one acre feeding five people.

Digital agriculture brought by drones is part of the next stage in industrialization of agriculture. It involves exploiting data from many sources — sensors on farm equipment and plants, satellite images and weather tracking. The use of water and fertilizer is measured and monitored. Growing can be monitored on a plant-by-plant basis.

Plant factories are being implemented worldwide that use 97% less water than an outdoor growing environment. Drones are anticipated to be used in those environments indoors. The data-rich approach to decision making represented a sharp break with tradition. It is a totally different world than walking out on the farmland, kicking the dirt and making a decision based on intuition.

Transparency is a significant aspect of sensor use in farming logistics. Consumers care that their food is cared for in the proper manner: end to end.

According to Susan Eustis, lead author of the study, “Transparency is one of the benefits of IoT that drones bring to digital farming. The benefits of digital farming are higher productivity and more efficient use of land, water and fertilizer. Transparency in farming is being asked for by consumers. Consumers want to know where their food came from, how much water and chemicals were used, and when and how the food was harvested. They want to know about consistent refrigeration during transport.”



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Use of drones represents a key milestone in provision of value to every industry. Customized cameras are used to take photos and videos with stunning representations. Digital controls will further automate flying, making ease of use and flight stability a reality. New materials and new designs are bringing that transformation forward. By furthering innovation, continued growth is assured.”

The worldwide market for agricultural drones is \$494 million anticipated to reach \$3.69 billion by 2022. The complete report provides a comprehensive analysis of drones in different categories, illustrating the diversity of uses for remote flying devices in farming. Analytics makes the images more cogent to farmers, letting them anticipate problems that only become visible to human farmers days or weeks after the drone images detect issues.

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