



Using Drones for Crops in Agriculture

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Annotation

In this article, to aim usage of new innovations technologies, especially, how usage of drones effectively and efficiency, achieving high and successful results and innovative technologies use widely in agriculture.

Keywords: drones, digital technologies, agro climate, techniques and farmings.



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INTRODUCTION

Currently, the use of digital technologies is developing rapidly in almost all spheres of human activity on a global scale. Agriculture is no exception. Therefore, in recent years, special importance has been attached to the development of the digital economy in our country. The priority tasks of the network are expressed in the decrees of the President in this direction, in the decision of the Cabinet of Ministers on December 17 of last year "On measures to develop the agro-industrial complex and the digitization system of the Republic of Uzbekistan". Currently, many agreements are being accepted and implemented to improve the agricultural sector of Uzbekistan. Also, one of the methods developed in the Uzbek agribusiness system is the drone industry. The use of drones in the agricultural sector contributes to the further development of this sector. style has been contributing to a wide range of small.

It is implemented on the basis of the Decree of the President of February 3, 2021 "On the further development of the system of knowledge and innovation in agriculture and the provision of modern services" and other relevant decisions. Also, many types of drones are being tested in our country. Because this the use of the service creates many conveniences. First of all, it increases the worker's power and work efficiency.

Taking care of land, crops, stables and livestock is a practical task that takes a lot of time. Even smaller hobby farmers can spend countless hours walking their land to spot potential problems before they become major problems. However, there is a lot that can be seen on foot. Drone service is the most efficient way to do this.

Drone technology gives agribusiness more in-depth real-time results. With agricultural drone images, agribusiness owners can capture high-resolution photos, videos and data in minutes. It's easier to identify crop problems or potential safety issues and act quickly. .

It helps to eliminate possible problems. Traditionally, monitoring involves looking for problems that you might not find until it's too late to fix them. Instead, small business owners in agriculture can use ag drones to monitor critical areas such as irrigation systems before potential leaks or damage become a significant problem and damage crops. The United States Department of Agriculture recently began using drones to sample water from irrigation ponds for E. coli contamination. An agricultural drone can help detect potentially dangerous chemicals or bacteria. This helps prevent farmers and ranchers from using contaminated water for crops and livestock, reducing risk to assets and end consumers.

Better images provide better information and cost savings. Before drone technology, many farmers relied on USDA satellite imagery to get an aerial view of their property.

Today, basic drones can scan large areas in a single flight, often in shorter periods of time than larger manned aircraft, and drones can easily and cost-effectively fly multiple times throughout the season.

In addition to saving time, high-resolution drone images provide more information than high-pixel satellite images. Farmers can collect data from drones about crop growth, health, and soil moisture. with a clearer vision, allowing them to take more shots. Better information helps businesses while saving money.

Security is often a major concern for agribusiness, and agro drones have the potential to help improve this in significant ways. For example, if farmland is potentially dangerous or difficult to travel, drones can be used to map the area instead of sending workers or researchers. In addition, after a storm, agribusiness owners can use drones to first assess wind, fire or hail damage, protecting worker safety and helping to speed up the claims process.

Drones equipped with thermal imaging can be used to check the temperature of livestock, which can indicate disease. Effective and efficient use of digital technologies in agriculture is reflected in many countries of the world. The drones purchased with the support of the European Union are surprising Moldovan farmers with their efficiency and bring high productivity."In 2021, we sprayed 11,000 hectares of agricultural land and estimated that farmers in the Republic of Moldova could save 1,500 tons of pesticides per year and 100-150 euros per hectare by avoiding mechanical losses and saving in practice with more efficient spraying. "says Vitaly Sakarã, founder of DRON Assistance.

Because drones spray from above, farmers don't use tractors, which can kill up to 10 percent of crops by mechanically moving them across the field, while they avoid burning fuel that pollutes the crops.

DRON Assistance currently has 16 agricultural drones for spraying and two for monitoring and mapping; Six of them were purchased thanks to the support of UNDP Moldova and the European Union. DRON Assistance, known among farmers for its pest and weed control services, offers agricultural land mapping, analysis and monitoring services.

As part of the "Acceleration of digital transformation in the public sector of the Republic of Moldova" program, with the financial support provided by UNDP Moldova, the company purchased a drone equipped with RTK (real-time kinematics) technology, which allows for mapping and creating multi-spectral images. Analyze cultures in real-time by recording images with GPS coordinates and embedded geotags. When the drone is airborne, an active ground station sends it raw GPS data. The drone's onboard GPS then combines this data with its own observations to pinpoint its position relative to the base.

Thanks to this technology, farmers can now easily detect the spread of weeds, pests and diseases and intervene where necessary to prevent the spread of the problem.

Of course, the creation of new technology or the creation of new inventions, along with many useful aspects, also have negative consequences. In agriculture - is the loss of resources due to technology. This applies to use the resource as soon as possible. Natural resources are non-renewable or non-renewable resources other than human creation. Seawater degradation, deforestation, fossil fuel and coal mining, resource pollution, soil erosion, and overconsumption of food were among the main resources being depleted. This is mainly due to irrigation, mining, water use and fossil energy use, all due to technological progress.

Another negative effect is that the use of drone service is not possible in any climatic conditions. Many drones feature features such as cameras to collect visual data and propellers to stabilize flight patterns.

The role of drones

Applications- Drones can be used for several purposes, including

Application of pesticides and nutrients;

mapping of the water distribution area;

water sampling;

Implementation cost - According to the World Economic Forum, the use of drones can reduce application costs by 20% and reduce the health risks of manual labor.

Precision Agriculture - This is also useful in developing precision agriculture, thereby optimizing the use of input data.

Productivity - farmer advisory services based on accurate agricultural know-how and data sources can increase productivity by 15%. Evidence-Based Planning – Drones enable data collection and resource-efficient nutrient application, facilitating crop production forecasting and evidence-based planning.

Emerging Technologies - Drones can be effective aids in implementing emerging technologies such as yield assessment or insurance.

Support for government initiatives - Drones will improve government initiatives such as “ More Crops” and reduce water inefficiencies in irrigation.

Drone data integrated with GIS and Google Earth satellite imagery will streamline schemes such as PMFBY by assisting in crop-cutting, crop loss assessment, insurance determination and dispute resolution.

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Drones equipped with thermal imaging can be used to check the temperature of livestock, which can indicate disease. Drones produced by many countries of the world, as well as by leading countries such as Japan, China and India, have their place in the world market. The Japanese company “Yamaha” started producing drones in 1983 at the request of the Ministry of Agriculture, Forestry and Fisheries of Japan.

In the coming years, the use of this important service in our country will have a small effect on the further growth of the agricultural sector of our country.

Conclusion

Improving the efficiency of stimulating innovative activities in the agrarian sphere aimed at developing the main sectors of Agriculture and targeted subsidies for the development of breeding work in itself, chemical means reimbursement of part of the costs in the purchase, agricultural plants original and elite seeds, major fund renewal events, Land structure, improving land use and improving land productivity, agro-industrial complex instruments of the state support system, which embodied the lending and insurance of their subjects, were proposed. Agroindustry today operates a network of innovation should be applied under the influence of an economic mechanism aimed at creating conditions of scientific and technological, managerial and organizational conditions of development

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