

THE IMPORTANCE OF DRONES IN AGRICULTURE AND CADASTRAL FIELDS

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Abstract:

In this article, you can be convinced of the importance of the reforms carried out in our country in recent years, including new technologies in the fields of agriculture and land management. It is possible to understand that results can be achieved.

Keywords: Geoinnovation, glonass, android, drone, visual detection.

We are talking a lot about the fact that the agricultural sector in Uzbekistan is not what it used to be, now it is becoming one of the science-based, modern directions. Indeed, today's agricultural system is very different from that of a few years ago. But this is achieved not only by advanced techniques, but also by the radical improvement of the field, the use of resource-efficient and the latest innovative technologies in the organization of work.

These technologies, based on the achievements of science, the research and experiments of scientists, make it possible to accurately and carefully implement the processes from tillage to the finished product without excessive labor and costs, using advanced techniques and digitized equipment. As a result, the scope of introduction of digital information systems on agricultural lands in our country is expanding.

The specialists of the Tashkent State University of Economics, Tashkent State Agrarian University and the Cadastre Agency "Geoinnovation Center" under the Tax Committee, working within the scientific-practical project of digitalization of agricultural activities based on modern drone technologies, have also started to achieve preliminary results in this direction. . The project 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. In March of this year, the first experimental work was successfully conducted on 10 hectares of

grain area, 4 hectares of vineyard area and 5 hectares of plowed land in Khibray district of Tashkent region. One self-flying drone device used in the process completed surveillance work in designated areas in just 6 minutes.

A quick way to get information

Recently, the use of unmanned controlled devices - drones in various directions has become quite popular. The possibilities of modern technological innovations are pushing people's demand for them to grow more and more. For example, aerial photography, search and similar processes used to involve a plane or a helicopter, which required a lot of time and money, but now, this task can be easily accomplished with the help of drones. In addition, devices of this type are being improved year by year, and their tasks and scope of application are expanding. We can say that the use of drones in agriculture is a novelty for the experience of our country. Usually, several people are involved in observing and monitoring the condition of the fields, and the process lasts for days. By performing these tasks with the help of drones, it is possible to save excessive time and manpower. This is the purpose of the scientific-practical project, which experts are conducting experimental work. With the help of unmanned devices, it is envisaged to monitor the condition of crops in a short time, to identify diseases present in them, to create a map of cultivated areas and fields, as well as to study and monitor pests..

— Within the framework of the scientific-practical project, existing problems in agriculture will be studied using drone technologies, and scientific proposals and practical recommendations will be developed for their elimination.

— Fertility of the soil in the plowed lands, grain fields, various diseases and pests in horticulture will be determined and a database will be created about them. Another important point is that the practical data obtained and recorded by drones are processed with the help of computer programs, and the necessary solutions are adopted based on them. These decisions serve to prevent the uniform development of crops and deviations and distortions in agrotechnical work.

Through computer screen images, it is also possible to determine information about diseases of crops, errors in irrigation works and where pests have increased. In addition, with the help of the received data and images, it is possible to calculate the damage caused by heavy rain, hail and similar natural

disasters, as well as the amount of the future harvest. Experts say that the recorded data is currently transferred to the computer through traditional methods. However, the scientific research that is being carried out to improve the process will create conditions for the continuous transfer of notes to the computer through the online system in the future.

Speed of 20 meters per second

The initial process in the experimental work began with the determination of land areas, the condition of vegetation, the determination of the dimensions of plowed lands, vineyards and grain fields and their monitoring. "DJI Phantom 4" drone was used during the work. The device, which weighs 1.4 kilograms, can monitor the area from a height of up to 500 meters, within a radius of 3,500 meters. The device has functions such as automatic take-off and landing, flying over fixed points, intelligent control of the destination, return to the flight point, warning about restricted areas.. It supports "Android" and "iOS" operating systems, works on "GLONASS" and "GPS" navigation system. The maximum flight speed of the device is 20 meters per second. In addition, it has a sports mode, DJI Guidance visual object detection, compass and sensor duplication systems. So'nggi rusumdagi droning havoda uchish vaqti 25 daqiqa bo'lib, tasvirlarni 12,4 MP kamera orqali qayd etadi. The latest drone has a 25-minute flight time and captures images through a 12.4 MP camera. Depending on the types of crops planted, the condition of the land, the purpose of their study and the importance of the adopted solution, it is possible to monitor an average area of 5,000 hectares using one drone. In this respect, at least 3 drones will be sufficient to survey the agricultural areas of an average-sized district.

In the future, it is planned to develop methods and algorithms for the use of self-flying devices for analyzing the terrain of fields, assessing the condition of plants, and monitoring crops based on the information obtained by drones. Also, the database of the studied objects will be formed, and the scientific and technical basis of using drone technologies in agricultural activities will be created.

— Within the framework of the project, a mobile platform, i.e., additional software, will be developed that will allow monitoring the condition of the fields using a mobile phone.

— A smartphone app helps control drones flying over cultivated fields. If a farmer wants to know whether the crop in a certain part of the field is ripe or not, the application will show the most optimal route to reach the desired place. And through the drone, the growth of crops is observed and it is quickly determined when to start harvesting.

If the research is fruitful, in the future, in other areas of our republic specializing in agriculture, the observation and monitoring of land, plants and harmful insects will be carried out using drones. For now, the next stage of experimental work is planned to be carried out in Akkurgan district of Tashkent region.

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