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METHODS OF FIELD WORK MONITORING

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The main source of information about the state of crops is monitoring. Field monitoring is necessary to identify the state of the environment and plants (growth stage, diseases, pests, weeds, temperature, temperature regime, etc.). Based on the data obtained, management decisions on soil processing, fertilization, and pest control are made. Traditional field monitoring requires a lot of time and labor. Especially when it comes to large land plots. It's only effective as long as the seedlings are young and you can walk on them deep into the field. When the plants are already mature and their height reaches more than 2 meters, the only thing left for the farmer is to carry out monitoring along the contour of the field, which makes it superficial, without accurate information, and this can lead to losses. This is where satellites and drones come to help.

Satellite monitoring is monitoring the state of crops and objects based on satellite images, which are analyzed by advanced artificial intelligence algorithms for various vegetative computational indicators.

The main advantage of satellite monitoring is the availability whole story. This means that by observing the current state of crops, farmers can see the same data for the last few years. If we consider in more detail, then monitoring the condition of crops using a satellite is an analytics based on high-precision satellite images. This is how it's looks – the satellite takes pictures, the program, or analyst, selects pictures with the required area and conducts an analysis. In addition to basic analytics (photo), due to the presence of special spectral cameras, it is possible to calculate the NDVI vegetation index. By analyzing this information, they can plan crop rotations and predict yields over large areas.

The use of drones in arable farming and agriculture in general is one of the most promising areas for the application of this technology. Drones can be effectively used for planning and controlling the stages of agricultural production, as well as for the chemical treatment of crops and other plants. At the same time, the main criterion for the introduction of drones is economic feasibility. Drones allow you to receive relevant and effective information when you need it, in addition, the information accumulated over a long period allows you to analyze processes in dynamics.

Drones can be equipped with a spectral camera to capture infrared images and calculate vegetation indices. Among the benefits of using drones are high mobility and speed of work, accuracy up to 2 centimeters, and no dependence on cloudiness. Among the shortcomings, it is worth highlighting the deterioration of the quality of images in bad weather, the presence of territories where flying objects are prohibited (around airports, military installations, etc.), and, of course, the high costs of drones themselves.

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