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INCREASING THE PERFORMANCE OF THE PARK OF EQUIPMENT WITH TELEMATICS

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Ways to improve the results of units, reduce material and time costs for the organization of control over the work, collection, processing and analysis of data on the progress of technological processes.

Keywords: agricultural machinery, innovative technologies, precision farming, telemetry systems.

It is known that incorrect technical and technological adjustment of agricultural machinery can lead to significant underutilization of its capabilities. The efficiency of agricultural machinery also depends on the human factor: the productivity of different machine operators in the same conditions can differ by 40 percent. Telemetry systems are able to improve the results of units, reduce material and time costs for the organization of control over the work, collection, processing and analysis of data on the progress of technological processes. Today, they are offered by a number of manufacturers of tractors and mobile agricultural machinery.

The main task of the Telematics system is to increase the productivity of the entire fleet. This goal is achieved by optimizing the process based on the analysis of working time, making adjustments to the settings, collection, accounting and documentation of data, increase the operational reliability of machines, improve service planning. With the help of GPS satellites the location of equipment is determined, and by mobile communication at regular intervals to a single server is transmitted more than 200 parameters of GPS coordinates, time and nature of work, technical indicators. Testing of the system on combine harvesters in Germany and the UK has shown that it can reduce the harvest period by three days, increase machine productivity by 10 percent, working time - by 7 percent, and reduce costs by at least 0.5 percent. The effectiveness of the development is also manifested in the possibility of remote diagnostics, early detection of components and components that require urgent service [1].

The Telematics system has a number of useful functions (Fig. 1). The first is a daily analysis of working time, which provides data on how and when the machine

worked. This reveals sources of additional costs, such as forced downtime and weaknesses in logistics. As part of this option, you can use the special indicator on the map to view the lanes of the units. Another function of the telemetry system is performance optimization, which allows you to compare the efficiency of up to three machines in real time and make the necessary changes. This allows you to optimally configure even the equipment that is operated by inexperienced mechanics, which will help improve their skills and motivate them to independently perform settings that depend on the specific situation [2,3].

Depending on the scope of tasks, the system is offered in one of three options: Basic, Advanced and Professional. The first is included in the basic equipment of many manufactured machines and includes the main functions: site navigation, information for field logistics and service support.

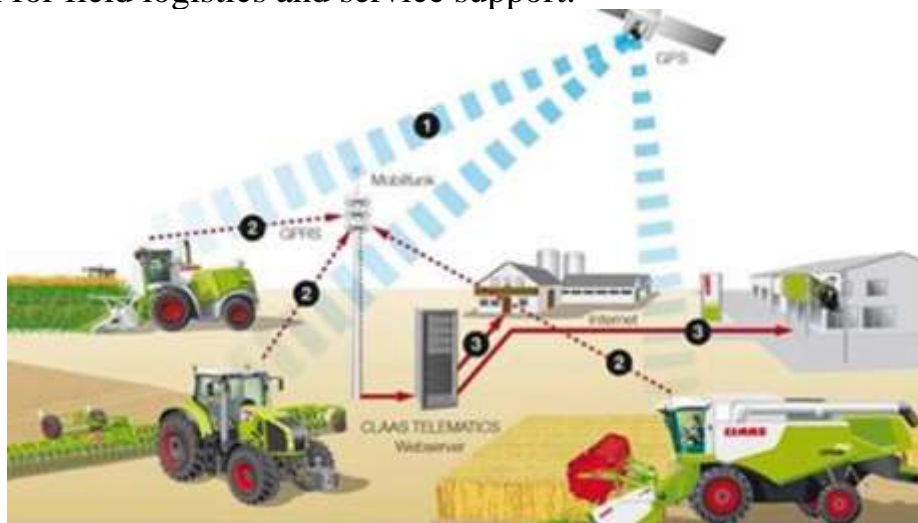


Figure 1 – Scheme of operation of the telemetry system Telematics:

- 1 - reception of location data via satellite;
- 2 - data transfer and machine settings over the mobile network to the server;
- 3 - data call by the farmer or remote diagnostics by the dealer

In this embodiment, there is a determination of the location and trajectory of the equipment, operating condition and current level of diesel fuel. It is possible to additionally install the functions of automatic documentation and export of data. The following complete set includes all ways of supervision and optimization of current processes, gives access to important working parameters: a trajectory of movement, productivity and productivity. This option provides the ability to view data for the last 72 hours, as well as the installation of automatic documentation. For large agricultural enterprises the most effective will be a professional complete set of the telemetry system which opens access to all data of the car. This option includes the ability to analyze to optimize the operation of individual units and the fleet as a whole, as well as advanced options for specific tasks. All archival data can be used.

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PROBLEMS OF IMPLEMENTATION OF INFORMATION TECHNOLOGIES IN FEED MANAGEMENT

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The most relevant measures for the use of energy-saving technologies to increase the efficiency of feed production are given. The problems of introduction of information technologies in management of fodder production are analyzed and the ways of their elimination are offered. Recommendations for coordinating the process of implementation of modern information technologies in feed production and agricultural activities in general are given.

Keywords: energy saving, fodder production, management, information technologies.

The modern system of fodder production is able to solve many problems of agriculture in Ukraine. It provides fodder for livestock, efficient crop rotations and increased yields of grain and other crops for crop production, and restoration of ecosystems and soil fertility for land use.

Feed production plays an extremely important role in the development of the livestock industry. The efficiency of livestock farms is largely determined by the supply of animal feed. Thus, in Ukraine, the cost of feed per unit of livestock production is 1.5-2 times higher than the average level of developed countries [1].

Therefore, special attention should be paid to creating a strong feed base through the introduction of energy-saving and modern information technologies.

Energy saving in feed production is a large complex task, the implementation of which is possible in the following areas: improvement and implementation of energy saving and information technologies; increasing the efficiency of feed production; use of renewable energy sources; optimization of equipment operation modes; implementation of organizational and economic measures for energy saving in feed production.