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PROTOTYPE OF SOFTWARE AND HARDWARE COMPLEX FOR DIFFERENTIATED APPLICATION OF AGROCHEMICALS

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The paper is devoted to the justification of domestic products creation for the transition to "smart farming". The current state of implementation of «smart farming» techniques abroad and in Russia has been analyzed. As a result of this analysis, the competitive advantages of the leading countries and companies, the factors of necessity in development of domestic products for precision farming, as well as the key competitive advantages of Russia in this field have been identified.

The process of development and implementation of agricultural technologies in the crop farming is studied. The basic processes and information flows of a typical agricultural enterprise are specified. The special software developed by the authors, allows planning, correcting and implementing agricultural technology in general, taking into account all processes and their parameters. Also the functionality of the Agronavigator Plus navigation system equipped with a GLONASS satellite navigation signal receiver is described.

The functionality of the prototype for the development and generation of electronic task cards for the differential application of bulk fertilizers and ameliorants is considered. The possibility of nitrogen fertilization of crops on the basis of remote sensing data has been demonstrated. The scheme of integration of the developed software and the navigation system Agronavigator Plus into a single software and hardware complex is given. Tests of the software and hardware complex were carried out based on the RMU-8000 (Shchuchinskyi Repair Plant, Belarus) and Amazone (Eurotechnology, Samara) machines.

Key words: precision farming, differential application, robotics, on-board computer, task cards.