«Wear resistance of blade and disc working bodies of tillage tilling machines hardened by electrodes T-series»

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Problem statement

Based on a systematic analysis of methods to increase the durability and wear resistance of the working bodies of tillage machines, it is established that their increase in 90% of cases is achieved by technological methods. In turn, this requires the use of expensive reinforcing materials, which leads to an increase in the cost of the final product. The solution of such a complex problem cannot be based on the use of one group of methods, but requires an integrated approach using a range of available groups of methods. Accordingly, the purpose of the work is to determine experimentally possible methods to increase the durability and wear resistance of the working bodies of tillage machines, taking into account the soil and climatic conditions of their operation. In the work, on the basis of soil-climatic conditions of operation of working bodies of tillage machines, operational, constructive and technological methods of increase of wear resistance of ploughshare and disk working bodies are experimentally established. Wear of the working bodies of tillage machines is complex. The problem of increasing the wear resistance and durability of working bodies that interact with the soil environment cannot be solved by using only technological methods to increase wear resistance and durability.
Solution methods

Figure 1. Options for applying a wear-resistant coating on disk working bodies.

Figure 3. Operating time of the working bodies of the UDA-4.5 unit to the limit state (coating scheme № 4, strengthening with T-590 electrode).

Table 4. Necessary geometric parameters of the working bodies of disk tillage machines to ensure their increased durability.
Conclusions

Results, implementation

• Wear of the working bodies of tillage machines is complex. The problem of increasing the wear resistance and durability of working bodies that interact with the soil environment cannot be solved by using only technological methods to increase wear resistance and durability. To achieve this goal, it is necessary to apply a comprehensive approach, which will include the development of technological, constructive methods to increase wear resistance and durability, taking into account soil and climatic conditions and the introduction of scientifically sound methods of operation of tillage machines. As a result of the application of another ball of wear-resistant coverage, the durability of the working organs of disk robotic machines is moved to: 13.1% in case of exploitation on a supine runt; 9.3% when used for medium loam; 7.1% when operating on light clay.
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