Reliability of foreign agricultural machinery operating in Georgia and methods of its improvement

J. Katsitadze*, Z. Putkaradze, G. Kutelia.
Georgian Academy of Agricultural Sciences, Javakhishvili st. #51, 0102, Tbilisi , Georgia
*corresponding author: chokhadari@yahoo.com

Keywords: Foreign Agricultural Machinery, tractors, combines, reliability, probabilistic-statistical model, failure.

The article examines the single and complex indicators of the operational reliability of agricultural machinery (tractors and combines) operating in the special soil-climatic and dynamic conditions of Georgia, highlights the least reliable units and parts that require constructive improvement.

As a result of research, according to the methodology of probabilistic and statistical modeling developed by us, integral and differential distribution functions of reliability indicators were obtained, their general characteristics were determined, as well as mathematical models and the values of reliability indicators were determined taking into account the distribution law. The adequacy of the probabilistic-statistical models was tested using the Pearson and Kolmogorov goodness-of-fit tests.

As a result of theoretical and experimental studies, characteristic malfunctions and failures of the main units of foreign agricultural equipment operating in Georgia have been established, and constructive and technological measures to improve reliability have been developed.