

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ БІОРЕСУРСІВ  
І ПРИРОДОКОРИСТУВАННЯ УКРАЇНИ  
Представництво Польської академії наук в Києві  
Польська академія наук Відділення в Любліні  
Академія інженерних наук України  
Українська асоціація аграрних інженерів

Міністерство  
освіти і науки  
України



121 річниці НУБіП України присвячується

**ЗБІРНИК**  
**ТЕЗ ДОПОВІДЕЙ**  
**XV МІЖНАРОДНОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ**  
**«РАЦІОНАЛЬНЕ ВИКОРИСТАННЯ ЕНЕРГІЇ В ТЕХНІЦІ»**  
*з нагоди 88-ї річниці від дня народження*  
**МОМОТЕНКА**  
*Миколи Петровича*  
*(1931-1981)*

**TechEnergy 2019**



**TECH** 2018  
**ENERGY**

*19-22 травня 2019 року*  
*м. Київ*

УДК 664.7:658

## **FAILURE STUDIES OF THE MACHINES FOR PREPARATION AND THE DISTRIBUTION OF FEED**

*Novistskiy Andriy, PhD*

*Ruzhylo Zinoviy, PhD*

*Novytskyy@nubip.edu.ua, ruzhylo@nubip.edu.ua*

*National University of Life and Environmental Sciences of Ukraine*

Establishing the actual values of reliability indicators of means for the preparation and distribution of feed (MPDF) in connection with the complication of their construction, as well as the results of analysis of foreign research in this area allowed to conclude that it is necessary to further develop new resource-saving areas, theoretical foundations and methods of improving the system of maintenance and repair (SMR) [1, 2, 3].

The analysis shows that the existing methods and methods of ensuring the reliability of the functioning of MPDF on livestock farms require improvement, and there is no holistic system of their maintenance and repair. The cost of the SMR MPDF implementation is determined by the flow of failures and updates, which are determined by the causes and factors of their occurrence and elimination.

Therefore, the objective was defined: to investigate the main factors that influence on the formation of cc failures and ways to eliminate them.

Therefore, the objective was defined: to investigate the main factors that influence on the formation of MPDF failures and ways to eliminate them.

In accordance with the standards, foreign and domestic manufactures MPDF failures were classified by: complexity groups; number of failures per unit of time; average duration of elimination; average labour intensity of elimination of failures; systems and functional mechanisms of machines.

In order to ensure the reliability of information and the implementation of research tasks, reliability test plans have been developed [2]. Initial conditions were as follows: the machines to be examined should be restored in case of incapacity for work or in good working order. No more than one failure can occur in the machine at a time. A failure that occurs in the machine at the same time causes a requirement to eliminate the failure, to carry out repairs. As the machines with different service life are examined, the failures that occurred earlier are not taken into account. Investigated MPDF are characterized by a certain level of readiness - the ability to perform the specified functions in a given time interval under specified conditions at the appropriate SMR.

In the process of research, the MPDF work was estimated on the basis of the following indicators: operating time, recovery time, probability of failure, probability of failure-free operation, intensity of failures, intensity of updates, availability factor. The laws on the distribution of operational reliability indicators and the assessment of

MPDF parameters were established based on the data obtained in the course of monitoring in the conditions of the enterprises of the Kyiv region during 2015 - 2018.

Information obtained in the course of research on refusals MPDF was divided into groups of complexity, types and causes of their occurrence [2, 3]. The first group of difficulties includes such failures as wear of knives and contradicting knives, mixers, weakening of drive parts. As a rule, such failures are eliminated by the machine operator by means of adjustments or replacement of parts.

The second group of difficulties includes such failures as wear of disks, wear of rubber bands, nuts, keys, gaskets, etc. Such failures require a lot of time for elimination, some of them are eliminated in the repair shops of agricultural enterprises.

The third group of complexity includes more complex failures, such as wear of bearings and gears of the gearbox, wear and tear of bearings of drive mechanisms. Such failures are eliminated in repair shops equipped with the necessary repair and technological equipment or specialists of dealerships.

#### References

1. Novytskyi A. V. Study of the probability of failure-free operation of means for the preparation and distribution of feed as systems "Man-Machine" / A. V. Novytskyi // *Motrol, motoryzacia i energetyka rolnictwa motorization and power industry in agriculture*. – Lublin, 2015. – Vol. 17, № 3. – P. 335 – 341.

2. Novytskyi A. V. Assessment of reliability of means for preparation and distribution of fodder depending on conditions and operation modes / A. V. Novytskyi // *Scientific journal NULES. Series "Techniques and power engineering of agro-industrial complex"*. – №212, part 1. – K., 2015. – C. 141 – 147.

3. Novytskyi A. V. Study of the dynamics of changes in the reliability of the means of preparation and distribution of feed / A. V. Novytskyi // *Scientific journal of the National University of Life and Environmental Sciences of Ukraine. Series: Techniques and power engineering of agro-industrial complex*. – K., 2016. – Edition 241, part 1. – C. 334-338.