Conclusion. We consider non-critical event (). Boundary value problem of impulsive (7) cheeky if and only if the condition (10). A iterative formula for finding solutions to such problems with this condition.$rank\ Q = n$

References

1. *Samoilenko AM* Dyfferentsyalnыe equation with ympulsnым Impact // AM Samoilenko, NA Perestyuk. K .: High tenacity .; 1987. 287 pp.––
2. *Boychuk AA* Annals Konstruktyvnыe methods for kraevыh problems // AA Boychuk. K .: Studies. thought; 1990. 96 pp.– –
3. *Samoilenko AM* Neterovы kraevыe by linear problems for systems with dyfferentsyalnыh ympulsnым Impact // AM Samojlenko, AA Boychuk. Eng. Math journal .; 1992, №4.C. 564-568.– –
4. *Samoilenko AM* Peryodycheskye solutions slabonelyneynыh systems with ympulsnым Impact // AM Samoilenko, NA Perestyuk // differents. equation. 1978, №16. C. 1034-1045.––

Poluchenы dostatochnыe terms of existence of solutions slabonelynyynyh nekrytycheskyh kraevыh problems with ympulsnым impact. Proposals shodyaschyysya s building a yteratsyonnыy algorithm.

Kraevaya task ympulsnaya Action, Green obobschennыy operator method prostыh yteratsyy.

Sufficient conditions for existence of non-critical solutions slaboneliniynyh boundary value problems with impulse action. The convergent iterative algorithm for their construction.

Boundary value problem, impulsive action, generalized Green's operator, the method of simple iteration.

UDC 631.171.075.3

METHODOLOGY MAINTENANCE OF AGRICULTURAL MACHINES

IL Rogovskiy, Ph.D.
OV Dubrovin, applicant

The paper presents the results of analytical studies and describe factors influencing the reliability of machines in the system of maintenance.

Reliability, machine maintenance.

Problem. In modern terms economical consumption of fuel, electricity, labor, and especially their unproductive expenses arising in

under- resource agricultural machines and their components in agriculture is one of the urgent tasks of science [1]. Inadequate attention to assessing the technical condition of machines in giving their operation leads to the appearance and inoperable conditions [2] and the premature departure of farm machinery repair [3]. This in turn leads to cost and especially overruns energy. The same applies to the lack of input control components that form the exchange fund management for troubleshooting [4]. Technical support agricultural producers requires a thorough systematic review of all its parts at all levels [5]. This is especially true production management to ensure trouble-free operation and economy of agricultural machinery during harvest [6].

In this regard, the formation of methodological steps due to the need to create consistency in the development of technology adapted maintenance of agricultural machinery.

Analysis of recent research. In theory, the maintenance of agricultural machinery remains a problem combining diverse manufacturing operations in a complex and formation of a single cycle maintenance [7]. For a series of perceived least periodically recurring operating time interval or time of operation of machines for which are performed in sequence set all kinds of maintenance [8]. This perspective is seen on the methodology that allows for specific machines, used machines operating experience using the method of publications [9].

The purpose of research. Summarize the methodological stages of development technology maintenance of agricultural machinery.

Results. In order to develop technology maintenance (Fig. 1) particular brand of agricultural machinery, follow these preparatory steps:

1. Read the design works with designing and production new car and write herx of the schedule; calendar period set design and implementation of the machine, its purpose, design features (types about, Operating, Mounting method), the main production operations application and use machines scope production, Likely the manufacturer and others.

2. Prepare an experimental framework for research work to establish the frequency of major maintenance operations that determine structure rules maintenance machines. At this stage, the perpetrators should be located in constant contact from designer organization on development machines.

3. Collect material in the machine design and project organization and manufacturing plants, materials factory and state tests, thorough engineering analysis of components and systems for agricultural machinery; Technical description of the drawings, manuals, albums,

specifications, manufacturing instructions and other; read from standards and legislative materials.

4. Develop a network schedule design technology maintenance agricultural machines indicating artists, volumes work, deadlines separate stages.

5. The development of technology should draw professionals are well aware of the design of machines and having experience with technology maintenance machines.

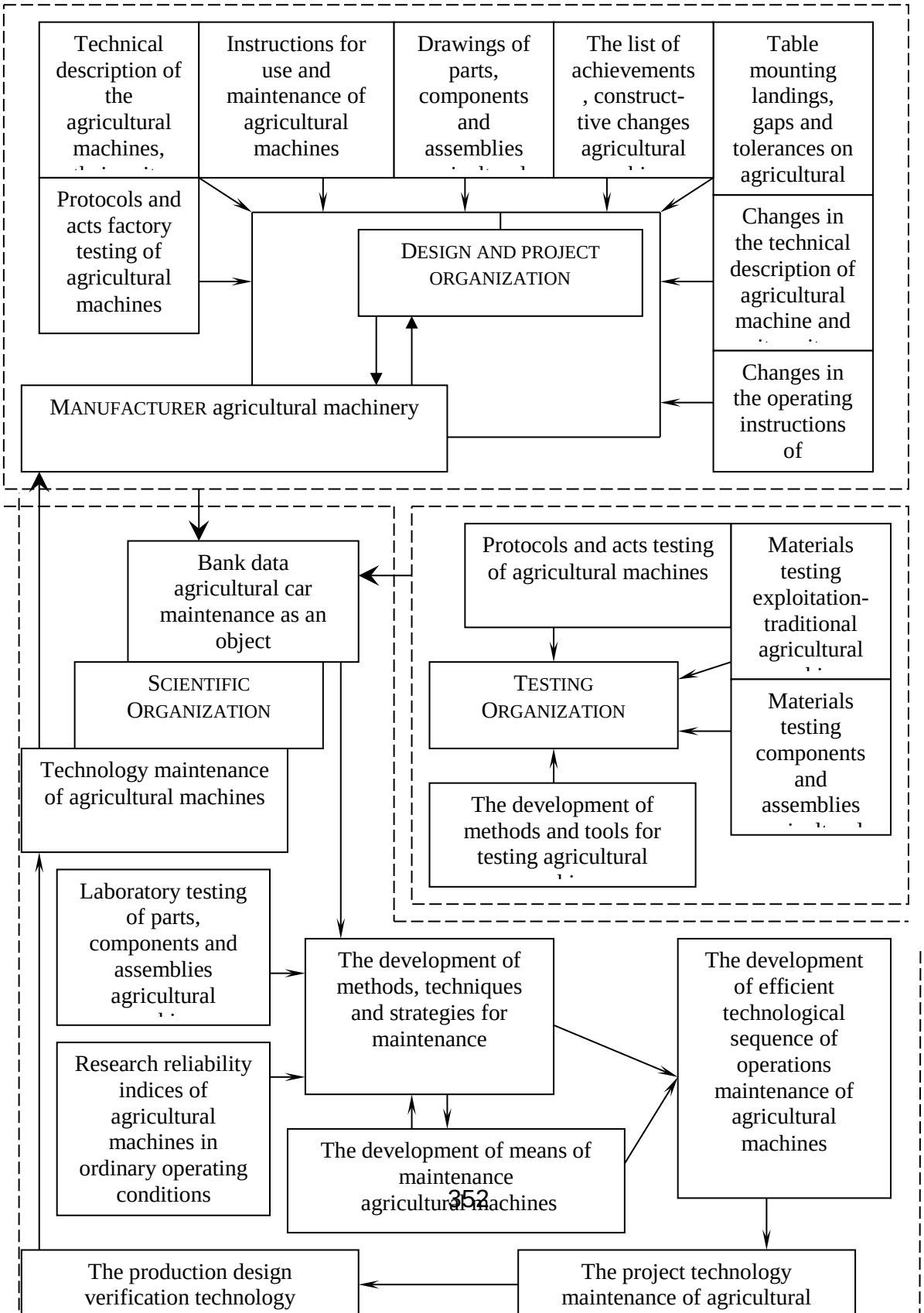

Fig. 1. Scheme of development of technology maintenance.

The first version of the technology maintenance should be developed by the time of state tests mashynovyprobuvalnyh stations.

Evaluation of development of technology maintenance is performed to determine the effectiveness of process solutions and developing cost-based measures to achieve a competitive level process service machines.

Increased achieved by using new standard processes and standardized equipment; possibility of specialization of labor during tTechnical service; using high-performance equipment, fast perenalahodzhuvanoho different designs for machines; organization works with maintenance services based on their specialization and centralization; implementation of scientifically based standards and uniform standard of documentation; quality processes.

The level of the developed technology maintenance machines can be estimated following parameters according to Table 1. The values of the generalized parameters are compared with normative values them. Near from thus led performance evaluation of the developed technologies determine the overall complexity and length of service of a machine with this technology and the reliability of the car after the service in accordance with GOST 2860-94.

1. Indicators evaluation of technology maintenance machines.

Indicator	The formula for calculating	Approved designation	Sufficient level
Factor typical application processes maintenance $K_{зтптто}$	$K_{зт т пт о} = \frac{N_{зт т п}}{N_{загзт п}}$	$N_{зт т п}$ - The number of employed standard processes; $N_{загзт п}$ - The total number of employed processes.	$K_{зт т р} \geq 0{,}8$
Factor for the development of software standards technology maintenance $K_{знрт т о}$	$K_{знрт т о} = \frac{N_{нормат}}{N_{загнормат ив}}$	$N_{нормат ив}$ - The total number of standards that are at the time of development; $N_{загнормат ив}$ - Required	$K_{знрт} \geq 0{,}85$

standards.

Extension Table. 1

Indicator	The formula for calculating	Approved designation	Sufficient level
Coefficient standardization of the means for those-room-night-servicing, $K_{сззт\ о}$	$K_{сззт\ о} = \frac{N_{сзт\ о}}{N_{зт\ о}}$	$N_{сзт\ о}$ - The total number of standardized products; $N_{зт\ о}$ - Total assets	$K_{сззт\ о} \geq 0{,}75$
Factor loading facilities maintenance $K_{завзт\ о}$	$K_{завзт\ о} = \frac{N_{фрфчзт\ о}}{N_{номрфч}}$	$N_{фрфчзт\ о}$ - Factual annual fund-tion time unit vehicle maintenance; $N_{номрфч}$ - Nominal annual fund-time	$K_{завзт\ о} \geq 0{,}8$
Factor unification process documentation, $K_{ут\ дт\ о}$	$K_{ут\ дт\ о} = \frac{N_{фдс}}{N_{дт\ т\ о}}$	$N_{фдс}$ - The number-hires Nuva-ing paper forms that meet the standards; $N_{фрфчзт\ о}$ - The total number of items documents applica-maintenance technology built into	$K_{ут\ дт\ о} \geq 0{,}9$
Coefficient of technological designs products $K_{т\ квт\ о}$	$K_{т\ квт\ о} = \frac{N_{дпмз}}{N_{бп}}$	$N_{дпмз}$ - An indicator of technological konyat-ruktsiyi products, which to-reach in the pro-ekttuvannya machines or after; $N_{бп}$ - Baseline technological constructions-ruktsiyi products in respect of which there is a comparison	$K_{т\ квт\ о} \geq 0{,}7$
The utilization time employees who perform maintenance machines $K_{вчпт\ о}$	$K_{вчпт\ о} = \frac{N_{фрфчп}}{N_{номрфчп}}$	$N_{фрфчп}$ - Actual annual fund operating time of the employee maintenance; $N_{номрфчп}$ - Nominal annual fund-time labor-workers servicing	$K_{вчпт\ о} \geq 0{,}7$

End Table. 1

Indicator	The formula	Approved designation	Sufficient

	for calculating		level
Coefficient of specialization works in maintenance, $K_{спт\,о}$	$K_{спт\,о} = \frac{N_{сот\,о}}{N_{от\,о}}$	$N_{сот\,о}$ - The total number of operations maintenance performed a specialized; $N_{от\,о}$ - The total number of operations maintenance machines	$K_{спт\,о} \geq 0{,}75$
Factor technology unification maintenance machines $K_{утто}$	$K_{ут\,т\,о} = \frac{N_{ммт\,т\,о}}{N_{омг}}$	$N_{ммт\,т\,о}$ - The number of brands of machines that tehobsluhovuyutsya for this technology; $N_{омг}$ - Total number of similar (same purpose) machines in the group	$K_{ут\,т\,о} \geq 0{,}8$

At developing technology maintenance machines shall be provided a high probability and accuracy of the data driven technology, so that on the basis of the said materials developed processes of service accrued wages, planned space and equipment for maintenance of machinery. The required reliability and accuracy of the data provided by the correct choice of the number of objects of observations for a given value of coefficients of variation, and the relative error of probability distributions specified values. If the probability density function is given, the number of observations N objects is determined depending on the relative error δ average value $t_{ср}$ study of a random variable with confidence probability β and the expected value of the coefficient of variation V, (estimated coefficient of variation is determined as the ratio of the empirical standard deviation to the mean), which is connected with the parameter b ratio:

$$V = \frac{\sqrt{\Gamma\left(1+\frac{2}{b}\right) - \Gamma^2\left(1+\frac{1}{b}\right)}}{\Gamma\left(1+\frac{1}{b}\right)}, \qquad (1)$$

where $\Gamma(V)$ - Gamma function whose value given in the standard tables according to GOST 2864-94.

The relative error δ determined from the known expression $\delta = \frac{t_в - \bar{t}}{\bar{t}}$ Where the upper one-sided confidence limits $t_в$ and the average value $\bar{t}$. Limit value of the relative error δ when determining the complexity and cost of materials taken to be 0.15, and the coefficient of

variation in the determination of labor and materials costs - 0.5. Then the minimum number of objects under observation $(\delta+1)^b = \frac{2 \cdot N}{\chi^2_{1-\beta,2\cdot N}}$ will be equal to 24 for the initial conditions: $\chi^2_{1-\beta,2\cdot N}$ given in tabular form in accordance with GOST 2862-94; confidential probability value β, Taking 0.9; relative error of 0.15; 0.9 confidence level; coefficient of variation of 0.5 Weibull distribution law.

When developing technologies maintenance of agricultural machinery is recommended to use the methodological decision:

- To develop a rational sequence of manufacturing operations - methods of network planning and management;
- To develop process maps regulation, monitoring, troubleshooting - methods of graph theory;
- To determine the values of labor and materials costs - statistical methods of data collection and processing, advanced methods of valuation of labor and materials.

Conclusion. The article inzahalneno methodological stages of technology development maintenance of agricultural machinery.

References

1. Rogovskiy IL Analytical provisions standardization of technical assessment of agricultural machinery / IL Rogovskiy // Journal of Kharkov National Technical University of Agriculture Petro Vasilenko. - Kharkov: KNTUA, 2010. - Vol. 93 "Mechanization of agriculture. - P. 238-245.
2. Rogovskiy IL Specifications for warranty maintenance of agricultural machinery / IL Rogovskiy // Scientific Bulletin of National University of Life and Environmental Sciences of Ukraine. Series: APC equipment and energy. - K., 2010. - Vol. 144, p. 3. - P. 286-291.
3. Rogovskiy IL Methods for solving adaptability of maintenance of agricultural machinery / IL Rogovskiy // Motrol: Motorization and power industry in agriculture. - 2010. - Tom 12B. - P. 153-158.
4. Rogovskiy IL The reliability of the control parameters of the technical state of agricultural machines / IL Rogovskiy, OM Bystryi // Scientific Bulletin of National University of Life and Environmental Sciences of Ukraine. Series: APC equipment and energy. - K., 2011. - Vol. 166, p. 1. - P. 93-99.
5. Rogovskiy IL Method of determining the dynamics of resource wear of combine harvesters / IL Rogovskiy, OM Bystryi // Proceedings of Taurian State Agro-Technical University: Scientific Papers / Taurian State Agrotechnical University. - Melitopol, 2011. - Vol. 11, v. 1. - P. 171-176.
6. Rogovskiy IL Analytical formalization purpose of maintenance of agricultural machinery / IL Rogovskiy // Proceedings of Taurian State Agro-Technical University: Scientific Papers / Taurian State Agrotechnical University. - Melitopol, 2011. - Vol. 11, v. 1. - P. 177-183.
7. Rogovskiy IL Evaluating the effectiveness of the control parameters of the technical state of agricultural machines / IL Rogovskiy // Proceedings of Taurian

State Agro-Technical University: Scientific Papers / Taurian State Agrotechnical University. - Melitopol, 2009. - Vol. 9, v. 4. - P. 22-30.

In Article predstavleny Analytical Results of research and descriptions factors of influence on nadezhnost machines in the system s tehnycheskoho of service.

Nadezhnost, car, Tehnicheskoe of service.

In paper results of analytical researches and description of factors of agency on reliability of mashines in system of its maintenance service are presented.

Reliability, mashine, maintenance service.

UDC 631,363

The technique of comparative evaluation Grinders Feed Grains

SE Potapov, applicant

The variant improve methods of comparative evaluation of machine for grinding grain feed.

Grinders grain productivity, energy, the degree of grinding, the coefficient of variation.

Problem. For the existence and development of the livestock industry important rational use

fodder. In this connection special significance takes to develop criteria and methods for evaluating the effectiveness of technological methods of processing feed raw materials, and the choice of means for their implementation

One of the most important and mandatory training of feed manufacturing operations, particularly grain for feeding is crushing [1]. In practice kormopryhotuvannya crushing process is seen as a process of destruction of feed grain to produce a product with optimum particle size of particles needed for effective use.

The optimum particle size of feed particles is determined scientifically based breeding recommendations, depending on the species and age of animals and birds, the type of grain and the nature of its use (feeding alone or as part of the mixed feed or feed) [1,2].