CLASSIFICATION OF INDICATORS FOR COMPLEX ASSESSMENT OF AGRICULTURAL MACHINERY

Prof. Dr. M. Mihov; Prof. Dr. G. Tasev;
m.mihov@abv.bg, gtassev@abv.bg

Institute of Soil Science, Agrotechnologies and Plant Protection “Nikola Pushkarov”, Sofia;
Faculty of Technics and Technologies of Trakia University - Stara Zagora.

Abstract: The efficiency of the machines depends on the completeness of the scope of the indicators and the factors with which they are linked.

In choosing the best solutions, it is necessary to evaluate the system metrics, and the optimal option machine or set of machines to be chosen using optimization criteria.

Figure 1 shows the system of indicators for complex assessment of agricultural machinery. Some of the indicators are interrelated to such an extent that they can be attributed to several groups, which is not an obstacle to the decision to implement the machines.

Fig.1. System of indicators for complex evaluation of machines

The indicators for the quality assessment of mechanized works should be divided into common types for all mechanized works and for separate groups of technological processes: soil treatment, sowing and planting, plant care, harvesting of crops.

The system of indicators for the evaluation of agricultural machinery is expressed and evaluated with a large number of properties, indicators and characteristics of quality and reliability.

In general, quality has four groups of properties: feasibility, social, bio-ecological and reliability

KEYWORDS: AGRICULTURAL MACHINERY, INDICATORS, QUALITY, OPTIMIZATION CRITERIA, TECHNOLOGICAL PROCESSES

First, we systemize and develop the system for indicators of quality assessment of mechanized works (agro technical indicators)

The indicators characterizing the quality of mechanized works are based on agro-technical requirements and operating technologies.

The indicators for the quality assessment of mechanized works should be divided into common types for all mechanized works and for separate groups of technological processes (Fig.2).
Fig. 2. Performance indicators for mechanized works

The system of indicators for the evaluation of agricultural machinery is expressed and evaluated with a large number of properties, indicators and characteristics of quality and reliability.

Fig. 3. Basic physico-mechanical and technological properties of soil and plants

Secondly, the Agricultural Machine Valuation System is expressed and evaluated with a large number of properties, performance indicators and quality and reliability characteristics.
Quality is a set of properties that meet the needs and / or requirements of users, and reliability - a complex property to maintain quality levels within established limits, time, modes and conditions. The main elements of the definition of quality are properties, needs and requirements (fig. 4). Quality properties are expressed by specific and complex indicators, and indicators with numerical and functional characteristics. The main elements of the conceptual definition of reliability are the level of quality, the established boundaries, time, modes and conditions (fig. 5).

The quality level is determined by three groups of properties that directly express the quality of the sites and their impact on humans, species and / or the environment (Figure 6).

In general, quality has four groups of properties: feasibility, social, bio-ecological and reliability (fig. 7).
Conclusions:
1. An attempt has been made to classify the variety of indicators for the comprehensive assessment of agricultural machinery.
2. There are scientifically qualified qualifications to cover the wide variety of indicators for the comprehensive assessment of agricultural machinery.
3. In the system, the indicators for complex assessment of agricultural machinery include reliability, which is a complex property and in it are reflected in the focus many of the indicators for complex assessment of agricultural machinery.

References:
1. К. Георгиева, Г. Тасев Механизация на процесите в земеделието. С., 2016.
2. Маджов Св., С. Глушков Критерии за избор на моторни триони за дърводобива в Р. България по равнището на качеството Сб. трудове „Техника, технологии и образование“. Ямбол., 2016. с. 123-129.
3. Михов М. Надеждност на машините в земеделието, С., 2012 г., с. 130.