U.D.C. 631.17

ECONOMIC EXPENDITURE OF MACHINE COMPLEXES IN AGRICULTURE

Mikulina Maryna Alexandrovna,
Ph.D., Associate Professor
orcid.org/0000-0002-6918-5192
Polyvanyi Anton Dmitrovich
Student
orcid.org/0000-0001-8363-7186
Sumy National Agrarian University
Sumy, Ukraine
marinamikulina1@ukr.net

Abstract. The proposed article states that the production of agricultural products in market conditions requires such a combination of technical means, labor and other resources that ensure its economic feasibility.

Key words: technical means, crops, economic feasibility, labor resources, market conditions, machine complex, profit, yield, planned production volume, increase of production efficiency.

The main task of mechanization of agricultural production is to ensure the mechanized execution of all technological operations in compliance with the requirements of technology in the optimal agro-technical terms with the minimum possible labor costs, material and energy resources.

To solve this problem in each agricultural enterprise it is necessary to ensure the optimal ratio between the volume of work and the level of their technical and energy support, which includes machine-tractor fleet, repair and maintenance base, labor and energy resources.

The current machine and tractor fleet in farms is morally and physically obsolete, there is a lack of qualified mechanics, and the repair and maintenance base has fallen into disrepair. This is a consequence of the fact that with the transition to a

market economy, the growth rate of prices for machinery and services significantly outpaced the prices of agricultural products, which deprived its producers of adequate purchasing power. As a result, the purchase of equipment for updating the ICC was reduced by 10-20 times or more, and some cars - stopped completely.

Low purchasing power of Ukrainian agricultural producers, loss of foreign market caused a sharp decline in production at the plants of tractor and agricultural machinery. In agriculture, in the production of major crops, the volume of production of certain products is a function that is expressed by the area of these crops and their yields. That is, the volume of production of certain types of crops is expressed as a function of the field area (plot) and yield of this species. In turn, the possibility of production volumes of a certain type of product is described by the functional dependence on the types and quantities of labor resources, technical means, seeds, mineral fertilizers, organic fertilizers, fuels and lubricants, plant protection products and other resources. In the analysis and recommendations for efficient production of agricultural products, the most important is a preliminary economic assessment of possible options for profit in order to choose the least expensive, in this case the most useful ratio of area, yield and amount of resources. The expansion of the area with a constant yield requires an increase in the number of technical means, and not proportionally, but abruptly. At the same time there are the following patterns: - as the area for production increases, the load of each type of machine first increases; - with increasing yields and a constant area of crops, the cost of resources increases, as well as the need for units to perform technological operations and processes; - production of machines decreases due to the increase of time for idling, technological downtime.

The basis of this method and the study of the efficiency of technological complexes of machines is the concept of minimum, optimal and maximum sizes of technical complexes for the production of homogeneous in composition and quality of crop products.

The minimum effective size of the complex of machines for efficient production of agricultural products is the volume of production at which the company minimizes profits in the long run.

The optimal size of the complex of machines for efficient production of agricultural products is such production that provides maximum profit or gives a minimum unit cost and costs.

The most effective size of a set of machines for efficient production of agricultural products is a set of machines and the composition of its technical means, in which the possible volume of production of agricultural products provides the greatest profit from production activities.

The following recommendations can be offered for the efficient use of technological complexes of machines and profit:

- changing the volume of production when using a set of machines with a fixed capacity, it is possible to determine the limits of its effective use; - complexes of cars have point of maximum profit, but it should be borne in mind that the entrepreneur is interested not so much in obtaining the largest number per unit of output, as in increasing the total number of investment projects. Therefore, the production of a given volume of products is appropriate at a level of costs not exceeding the total profit from its sale or unit price;

- the efficiency of technological complexes of machines is directly related to sales prices and resource prices.

Therefore at calculations of effective parameters of complexes it is necessary to consider possible variants of change of the prices for the received production. As a rule, to reduce the probability of loss, the calculations include a minimum price for products and a maximum price for resources. If the technological complex is not intended for the production of marketable products, the choice of its size is determined by specific cost indicators, and the limit of use - the limit values of the cost level. It is necessary to compare the technological complexes of machines and technical means of the same purpose, which allows you to choose the most efficient composition of the machine-tractor fleet.

To increase the efficiency of the technical support system of agriculture, protect the rights of consumers of agricultural machinery and promote the development of domestic engineering, it is necessary to take a number of organizational measures: introduce preferential taxes on imports, which determines the share of the harvest; to introduce a preferential tax on the element base and components that are imported into Ukraine for the repair of imported equipment purchased in previous years, or the use in the construction of domestic equipment in order to improve its technical level; to introduce a strict increased tax on the import of machines, analogues of which are developed and produced in Ukraine and can provide mechanized production of agricultural products; provide targeted soft loans to agricultural enterprises for the purchase of domestic machinery; to strengthen the responsibility of manufacturers of agricultural machinery to its consumers for ensuring the reliability of machinery, maintaining it in working order throughout the period of use in the economy.

Reducing the technological need for machinery can be achieved through zonal specialization in the production of agricultural products, the use of resource-saving technologies, increasing the productivity of machine-tractor units and the intensity of use of machinery.

List of references

1. Поливаний А.Д., Мікуліна М.О. Логістична концепція транспортних підприємств// Матеріали Всеукраїнської студентської науковій конференції (11-15 листопада 2019 р.).– Суми, 2019. С.270

2. Мікуліна М.О. Фінансова діагностика сільськогосподарського підприємства: можливості традиційного підходу. Вісник Сумського національного аграрного університету. Серія «Фінанси і кредит». 2005. №1. С. 108-113.

3. Мікуліна М.О, Барабаш Г.І., Поливаний А.Д. Вплив схем розвантаження комбайна на показники використання транспортного засобу // The 5th International scientific and practical conference «Science and education: problems, prospects and innovations» (February 04-06, 2021) Publishing House “ACCENT”,

Kyoto, Japan. 2021. 1073 p. C. 691-699

4. Мікуліна М.О., Поливаний А.Д. Використання супутникових даних в сільському господарстві [Електронний ресурс] / А.Д. Поливаний // Збірник тез доповідей по матеріалах І Міжнародній науково-практичній конференції молодих учених «Технічне забезпечення інноваційних технологій в агропромисловому комплексі» Таврійського державного агротехнологічного університету імені Дмитра Моторного (1.02.2021-26.02.2021р., м. Мелітополь)- м. Мелітополь 2021. С. 33-34