

## FACTORS AND INDICATORS FOR EVALUATING THE EFFECTIVENESS OF LAND RESOURCE MANAGEMENT AT AGRARIAN ENTERPRISES

*Poltavets A. Factors and indicators for evaluating the effectiveness of land resource management at agrarian enterprises.*

The article substantiates the composition of factors and indicators for evaluating the effectiveness of land resource management at agrarian enterprises. Indicators of the effectiveness of land resources use at agrarian enterprises have been determined. Factors influencing the effectiveness of land resource management at agrarian enterprises are substantiated, dividing them into external and internal. It was established that indicators of the effectiveness of land resource management should be sufficiently standardized, which requires the selection of areas that can be divided into the following groups: social group, ecological group, economic group, institutional (legal) group. It has been outlined that the main criteria for effective land use at agrarian enterprises are obtaining production results sufficient for the expanded reproduction of advanced capital in the form of produced volumes of agrarian products, provided that the agro-ecological condition of agrarian lands is improved or at least not deteriorated and the landowners achieve an appropriate level of income. Changes in the legal regulation of the economic circulation of agrarian land have a significant impact on the achievement of economic and other types of effectiveness in the use of land resources. It is substantiated that specific indicators of agrarian production by industry per unit area, indicators of production and total costs for the production of agrarian products, the cost of soil protection and soil conservation measures depending on their composition, the cost of rent and the results of the normative assessment of the value of land plots depend on the production value and soil grading.

**Keywords:** land resources, land use, evaluation, performance indicators, balanced development.

**Formulation of the problem.** Peculiarities of domestic agrarian production, significant organizational, managerial and production inertia of its subjects, the main category of which is agrarian enterprises, their existing sizes and scope of their main activities, trends in changes in capital concentration, specialization and diversification, restrictions on access to the market of investment and credit resources determine the need to build rational approaches to the management of economic potential and its resource components in the context of ensuring conditions for the development of agrarian enterprises. Land resources are the basis for the formation and implementation of the economic development potential of agrarian enterprises and that component of their resource provision determines the industry, production and market identity of commodity-producing enterprises. Moreover, for the last 30 years, there have been significant changes in the structure of ownership of land resources, regulation of land relations, complex constructions of private-lease relations regarding the use of land have been built, and, finally, the moratorium on the sale of agrarian land has been stopped.

**Analysis of recent research and publications.** These changes necessitate the development of approaches to evaluation of the effectiveness of the use and management of land resources at domestic agrarian enterprises. In solving the problem of the effectiveness of land resource management, such Ukrainian scientists as D.I. Babmindra, H.E. Bystrov, V.M. Budziak, O.I. Hutorov, O.O. Hutorova, S.I. Demianenko, D.S. Dobriak, O.V. Kireytseva, A.S. Popov,

Ya.S. Tkal, A.M. Tretiak, etc. However, the developed theoretical base needs to be improved, and the specifics of determining and evaluating effectiveness require more detailed research.

**Formulation of the goals of the article.** The purpose of the article is to determine the composition of factors and indicators for evaluating the effectiveness of land resource management at agrarian enterprises.

**Presentation of the main research material.** Considering the fact that land resources are a natural object, as well as an object of land relations, we propose to divide the effectiveness of agrarian land management into ecological and economic. Thus, ecological effectiveness characterizes the conditions created due to the management of the preservation of land resources and other elements of the natural environment and their improvement, the reproduction of soil fertility, the prevention of land degradation processes, water erosion, deflation, the deterioration of the cultural and meliorative state, and the cessation of these and other negative phenomena. Economic effectiveness takes into account the effectiveness of agrarian land management measures in terms of value [9].

In the conditions of aggravation of the ecological situation, the ecological and economic effectiveness of land resource management should be considered in the aspect of their rational use and preservation of the natural state. This actualizes the problems of increasing the effectiveness of the use of land resources, taking into account their qualitative condition, and initiates the development of theoretical and practical foundations of the rational use of land.

The economic effectiveness of land use, in a narrow sense, is a comparison of the obtained results with the area or cost of land. In a broad sense, the effectiveness of land use is manifested not only in increasing the results of agrarian production, but also in reducing costs, increasing soil fertility, product quality, as well as compliance with ecological production conditions.

The priority of one or another effectiveness criterion depends on the specific economic conditions, the level of development of productive forces. The application of criteria of ecological and economic effectiveness makes it possible to give the evaluation of forms of land use a comprehensive content. These criteria create limitations for methods of obtaining profit or income from the use of land as a natural resource, and also make it possible to form a system of rational and at the same time balanced land use. Therefore, the instability of the selection of land use effectiveness criteria is caused by the mixing of factor and result indicators. Factor indicators reflecting changes in the structure of land and capital investments provide an opportunity to assess the degree of rationality and intensity of land use, as well as to develop a set of measures to increase the volume of agrarian products.

However, in our opinion, to evaluate the effectiveness of the use of land resources, it is more expedient to use effective indicators, which should include: natural indicators characterizing the output of products per unit of land area, as well as the growth of products for a certain period per unit of area; economic indicators – the cost of gross production from 1 hectare of land, per 1 hryvnia of fixed assets, the cost of 1 ton of production, output per 1 hectare of agrarian land, etc.; quality of land resources, agroecological indicators. It should be emphasized that there is interdependence between factor and performance indicators. In addition, indicators of rationality and effectiveness of land use are not identical concepts, since the former affect significantly the effectiveness of land use. In general, when justifying the criteria for ecological and economic assessment of anthropogenic impact, it is necessary to take into account the basic provisions of the interaction of economic and ecological subsystems, which determine the interests of society and the interests of the economic entity [6]. Criteria for evaluating the interaction of economic and environmental subsystems should reflect the most complete set of interactions that embody economic and environmental goals.

Having considered various methods [6, 9] of determining the effectiveness of agrarian land use, the study formed a set of ecological and economic indicators used to evaluate the effectiveness of land resource use and management.

Preliminary decisions on the formation of their alternative options should also take into account the principle of complexity. For this, each of the considered options should include organizational and territorial, production and technical, structural, investment solutions, etc.; groups of measures that are widely used to increase the effectiveness of land use in the process of agrarian production.

The economic effectiveness of land use in agriculture is expressed by a system of indicators that characterize both the effectiveness of the use of all land resources assigned to the economy and the effectiveness of certain types of it. The analysis of the set of indicators of the effectiveness of land resources use gives reasons to divide them into three groups: the first characterizes economic effectiveness, the second – social, and the third – environmental (Table 1).

Analysis of the state of use of land resources at agrarian enterprises consists of successive stages: determination of the composition and structure of agrarian land (total land area, area of arable land, hayfields, pastures, perennial crops, presence of irrigated or drained land); determination of the composition and structure of sown areas (areas of grain and leguminous, technical, fodder and other crops).

These indicators have a significant impact on the results of the economic activity of agrarian producers. It is important to determine the level of intensity of land use. To do this, the following are calculated: the degree of economic use of land, which is calculated by dividing the area of agrarian land by the entire land area of the farm; indicator of the level of plowing, which is defined as a share of the division of the arable land area by the total land area of the enterprise's agrarian lands; specific weight of intensive crops. Indicators of the economic effectiveness of the use of land resources at agrarian enterprises are mainly based on calculations related to the areas of agrarian land or arable land, and are divided into natural and value.

As a result of reforming the effectiveness of land resource management in agriculture, there are positive and ecologically destabilizing factors. In agriculture, land is the main means of production, the object and means of labor. It mostly determines the pace of development and the level of production. The development of effective use of land resources both at the state level and at the level of a separate agrarian enterprise requires the appropriate improvement of management mechanisms, that is, state support and control in the land resource management. Its role is especially growing, based on the tasks of land reform, which involves the redistribution of land for further ownership, the formation of a multi-system

economy in the countryside, and most importantly – ensuring the rational use and protection of land resources as the most important national wealth. Control over the achievement of the goals of land management, management of this

process, decision-making, evaluation of the effectiveness of the means used and the level of achievement of the set goals requires the development of appropriate criteria and indicators, namely land management indicators.

*Table 1*

**Indicators of the effectiveness of land resources use**

Indicators	Characteristics
Growth rate of gross output	shows the growth of gross output for a certain period
Growth rate of cultivated areas	shows the growth of cultivated areas over a certain period
Crop capacity	shows the natural return of land resources
The growth rate of profit from the sale of agrarian products	shows the accumulation of equity capital
Specific productivity of the land	provides a comparative assessment of land use of various forms of management
The level of profitability of agrarian activity	shows the amount of profit that falls on the amount of expenses
Added value per 1 ha of agrarian land	shows the amount of added value per unit of land resources
Rent rate	shows the specific weight of the normative assessment of the land paid as rent to the landlord
The specific weight of perennial plantings in the structure of agrarian land	shows the possibilities for the most expensive type of agrarian activity, which involves a larger list of land in terms of qualitative and quantitative characteristics
The growth rate of productivity	shows an increase in yield over a certain period
Land rent (without taking into account the value of land)	shows a specific rate of return
Land rent (taking into account the value of land)	shows the rate of income based on the normative assessment (market value) of the land
Additional products are obtained as a result of improving the agriculture	shows the effects of long-term capitalization
The amount of profit per UAH 1,000 of the value (normative assessment) of the land	shows the amount of profit per unit of cost (normative assessment) of land
Specific gravity of agrarian land in private ownership	shows the share of agrarian land cultivated in households and farms
The cost of additional products obtained by optimal predecessors	shows an absolute increase in production according to expert assessments of the optimality of crop rotations

It is possible to single out the main factors that affect the effectiveness of land management. According to the zone of influence, we divided all factors into two groups: external and internal,

which is indicated in the table 2. Formation of indicators of the land resources management system is necessary from the definition of relatively precise requirements for them.

*Table 2*

**Factors affecting the effectiveness of land resource management at agrarian enterprises**

External factors	Internal factors
new technologies; increasing turnover; expansion of the variety of products; economies of scale of production; formation of single investment-attractive arrays from separately processed shares; obtaining more profit as a result of the formation of added value, supporting the processes of extended reproduction; establishment of international cooperation; possibilities of introducing foreign experience into domestic business practice; material and technical re-equipment and modernization of economic entities; development of logistics systems and infrastructure facilities for the foreign trade process; activation of regional cross-border cooperation; building inter-industry horizontal and vertical connections	different forms of ownership; high quality of agrarian products; low cost of agrarian products; powerful natural resource potential and favorable natural and climatic conditions; favorable territorial location of Ukraine and availability of developed transport connections; the presence of unused reserves for increasing production volumes and increasing the level of economic effectiveness; strong prospects for the development of organic agriculture; high level of diversification of production; the possibility of product presentation in all market segments; involvement of relatively cheap labor resources in production

These requirements include: 1) indicators of land management are needed in order to contribute to the development of policies and relevant decisions at all levels: village, settlement, city, district, region, country, enterprise; 2) these indicators should respond to all important concerns arising in the process of land management, which take into account interacting systems and their environment; 3) the number of indicators should be as small as possible, but at the same time they should be sufficiently effective and reliable; 4) indicators must be clear, precise, understandable and practical, and also take into account the interests of all participants in the land management system; 5) indicators should help to assess life activities, determine current events related to the

management of land resources. Also, the indicators should work on a very different information basis. Some are measured in terms of value; others are measured in quantity. Indicators should be sufficiently standardized. This, in particular, will be facilitated by the selection of areas that can be divided into the following groups: social group – integrates issues of equality, justice, guarantees and protection of land ownership and rights use; ecological group – unites the issues of protection and rational use of land, soil fertility; economic group – covers economic, financial, production, development, and management issues; institutional (legal) group – integrates institutional frameworks and institutional capabilities in land relations.

The effective use of land resources in agriculture should be understood as a socio-economic category that depicts the relationship with people in the process of implementing technological production processes related to the production of agrarian products, with the aim of maximally meeting the needs of the population in food products to ensure the restoration of natural soil fertility, increasing the productive potential of land resources and their use in conditions of a high level of environmental friendliness of both these resources and the environment as a whole [4]. Academic agrarian economists use such a concept as "effective use of land resources", that is, achieving the maximum effect with the minimum expenditure of resources. "Productive land use" is actually a component, a segment of "efficient land use". It is about obtaining certain results in agriculture without taking into account the costs associated with production [4]. In market conditions, the interpretation of effective land use has changed to economically expedient and profitable use of a land plot for its intended purpose without deterioration of its qualitative and ecological-aesthetic characteristics and in compliance with the requirements of encumbrances and restrictions, which is achieved by intensification of production in scientific and technical progress and improvement of territorial organization.

The theoretical-methodological approach used in the research to distinguish the economic, ecological and social results of agrarian land use led to the development of methods for determining the effectiveness of land resource management using a number of indicators that characterize the achievement of results in these areas. Accordingly, it was established that the main criteria for effective land use at agrarian enterprises are obtaining production results sufficient for the extended reproduction of advanced capital in the form of produced volumes of agrarian products, provided that the agro-ecological condition of agrarian lands is improved or, at least, not deteriorated, and the proper level of income of

landowners is achieved. Therefore, changes in the legal regulation of the economic circulation of agrarian land have a significant impact on achieving economic and other types of effectiveness in the use of land resources, because the lifting of the moratorium on the sale of agrarian land will affect significantly the business value of agrarian entities, depreciation policy, as well as investment attractiveness of agrarian enterprises. The total results and consequences of land use at agrarian enterprises determine the choice and formalization of indicators that should be used to evaluate the effectiveness of land resource use. Studies have shown that specific indicators of agrarian production in this industry per unit area, indicators of production and total costs for the production of agrarian products, the cost of soil protection and soil protection measures depend on their composition, the cost of rental fees, and the results of the normative assessment of the value of land plots depend on the production value and soil grading.

**Conclusions and prospects for further investigations.** Thus, it has been established that the main criteria for effective land use at agrarian enterprises are obtaining production results sufficient for extended reproduction of advanced capital in the form of produced volumes of agrarian products, provided that the agro-ecological condition of agrarian lands is improved or, at least, not deteriorated, and the proper level of income of landowners is achieved. Furthermore, changes in the legal regulation of the economic circulation of agrarian land have a significant impact on the achievement of economic and other types of effectiveness in the use of land resources, because the lifting of the moratorium on the sale of agrarian land will affect significantly the business value of agrarian entities, depreciation policy, as well as investment attractiveness of agrarian enterprises. The following indicators should be used as criteria for the economic effectiveness of land resources use: the amount of land payments to budgets (land tax, rent), the price of land, industry indicators characterizing the final results of land use (gross agrarian production, investment inflow), etc.

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#### Анотація.

**Полтавець А. М. Фактори та показники для оцінки ефективності управління земельними ресурсами в менеджменті сільськогосподарських підприємств.**

У статті обґрунтовано склад факторів та показників оцінювання ефективності управління земельними ресурсами в менеджменті аграрних підприємств. Визначено індикатори ефективності використання земельних ресурсів сільськогосподарськими підприємствами. Обґрунтовано фактори, які впливають на ефективність управління земельними ресурсами сільськогосподарськими підприємствами з поділом їх на зовнішні та внутрішні. Встановлено, що індикатори ефективності управління земельними ресурсами мають бути достатньо стандартизованими, що потребує виокремлення напрямів, які можна розподілити за такими групами: соціальна група, екологічна група, економічна група, інституційна (правова) група. Встановлено, що основними критеріями ефективного землекористування аграрних підприємств є отримання достатніх для розширеного відтворення авансованого капіталу виробничих результатів у вигляді вироблених обсягів сільськогосподарської продукції за умови покращення або, принаймні, не погіршення агроекологічного стану сільськогосподарських угідь та досягнення належного рівня доходів землевласників. Суттєвий вплив на досягнення економічної та інших видів ефективності використання земельних ресурсів мають зміни в правовому регулюванні економічного обігу сільськогосподарських угідь. Обґрунтовано, що достатніми для прийняття більшості управлінських рішень в менеджменті земельних ресурсів є питомі показники виробництва сільськогосподарської продукції за галузями на одиницю площі, показники виробничих та повних витрат на виробництво сільськогосподарської продукції, вартість ґрунтозахисних та ґрунтоохоронних заходів в залежності від їх складу, вартість орендної плати та результати нормативної оцінки вартості земельних ділянок в залежності від виробничої цінності та бонітування ґрунтів.

**Ключові слова:** земельні ресурси, землекористування, оцінка, індикатори ефективності, збалансований розвиток.

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