Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 19, Issue 3, 2019
PRINT ISSN 2284-7995, E-ISSN 2285-3952

DIRECTIONS OF THE ORGANIZATIONAL AND INVESTMENT MECHANISM OF AGRICULTURAL LANDSCAPES USE

Oksana Ivanivna DREBOT[1], Mykola Kharitonovich SHERSHUN[1], Lyudmila Ivanivna SAKHARNATSKA[2], Mariya Yaroslavivna VYSOCHANSKA[1]

[1]Institute of Agroecology and Environment management of NAAS, 12, Metrologichna Str. Kyiv 03143, Ukraine, Phone: +380671012275, E-mail: drebot_oksana@ukr.net, Phone:+80673601001, E-mail: m_shershun@ukr.net,
Phone:+380680472991, E-mail: maryia_vysochanska@ukr.net
[2]Uzhhorod National University, Universytets'ka St, 14, Uzhhorod, Zakarpats'ka oblast, 88000, Ukraine, Phone: +380503723939, E-mail: ostapchik81@ukr.net

Corresponding author: maryia_vysochanska@ukr.net

Abstract

The statistical data on investments in Rivne region for 2010-2016 are analyzed and presented in terms of sources of financing: the state budget, local budgets, own funds of enterprises, loans and loans, foreign investments and other sources of financing. Correlation analysis of available data is carried out. It was found that the profit of private peasant farms has a high linear dependence on budget investments, own funds of enterprises, loans, as well as other sources of financing. Farmers, however, depended heavily on state budget funds, but more dependent on foreign funds than OSG. Research shows that the greatest problem of low productivity of agricultural land use has low ecological security. The structural and economic system of land resources use is discussed. Directions for effective functioning and economic stimulation of balanced use of agricultural lands are offered.

Key words**:** *land resources, agrarian sector, economic mechanism, ecological management, investments, farms, personal peasant farms*

INTRODUCTION

Taking into account the situation in agriculture and in particular in the economy in general, improvement of the economic structure of agrarian land should be deliberated over: advancement of efficient principles for the economic mechanism of balanced use of agrarian land; development of directions of how to increase the efficient use of agricultural lands. Regarding land investment, first of all, it is essential to determine their essence and features in comparison with other types of investments. Investments represent an investment of capital for the purpose of its subsequent increase in the broadest sense, as is known. However, in different spheres of activity, they have their own peculiarities [3].

The objective of the paper is to determine the directions on the effective use of organizational-investment mechanism of agricultural land on an example of Rivne region.

MATERIALS AND METHODS

The need determines the need to find a balance between the ecological and economic efficiency of the use of agricultural land in the Rivne region for the period from 2010-2016, according to statistical data, a linear regressive multivariate predictive model with organic production is constructed.

The economic-statistical methods used for processing the data in the assessment of the ecological and economic condition of agricultural lands have been: correlation-regression analysis for the study of the impact of agricultural activity on the state of agricultural land use, mathematical modeling of the establishment of optimal production and industry structure of farms.

Theoretical factors of the agricultural land use, the realignment of land relations and the

accomplishment of rational land use are presented in the works of domestic scientists, in particular O.I. Drebot [11], D.S. Dobrika [10], O.D. Gnatkovych [3], Research on land use organization and improvement of the economic mechanism of balanced use of land resources in agriculture are presented in the scientific works of domestic scientists, in particular N.I. Palyanychko [12].

Intensification of land use involves intensive soil use, which will increase the economic efficiency of using agricultural lands. At the same time, there is an increase in negative anthropogenic influences, including an increase in physical pressure on the soil and the chemistry of agricultural production. This leads to a deterioration of the environmental situation, a decrease in the environmental performance of land use.

But there is a need for further study of the formulation of a practical basis for advancement of the organizational and economic system for the agricultural land use.

RESULTS AND DISCUSSIONS

At present, the agrarian sector of the economy is known to be in decline, thus, so as to increase the productivity of farms and private peasant farms, it is essential to attract financial resources for their independent development, that is, the implementation of production activities of farms at the cost of investments. Given that the successful development of farms depends on the rational and efficient use of land resources by land users and landowners, investments must first of all be used for the acquisition, attraction and reproduction of the infrastructure of the resource base of Ukraine and in particular of the region. One of the directions of increase of investments in agricultural land in Ukraine, in particular in the studied region, which will provide the highest level of interest of potential investors. We note that for today the improved result needs to be improved to the state of their use, as this is due to the underestimation of elements such as low funding, lack of interested landowners, land users, etc.

The analyzed statistics on investments in Rivne region for 2010-2016 is shown in (Table 1). The data is presented in terms of sources of funding: the state budget, local budgets, own funds of enterprises, loans and loans, foreign investments and other sources of financing in Ukrainean currency (UAH).

Table 1. Investments in agriculture (thousand UAH)

	Total investments	**Source of investment**					
		State budget	Local budgets	Own funds of enterprises and organizations	Bank loans and other loans	Funds of foreign investors	Other sources of funding
2010	174,154	6,909.0	20,488.6	90,293.3	33,353.8	10,720.8	12,388.5
2011	337,900	22,862.0	42,523.0	223,133.0	19,204.0	12,803.0	17,375.0
2012	214,050	17,987.3	19,486.3	147,196.9	17,987.4	1,199.2	10,192.9
2013	288,190	12,351.0	30,054.0	208,731.9	13,997.9	1,235.1	21,820.1
2014	315,900	3,948.8	32,467.5	235,170.0	15,356.3	5,703.8	23,253.8
2015	325,678	4,145.7	37,543.6	254,430.2	15,758.6	5,906.9	25,343.5
2016	346,521	4,235.5	39,756.7	273,423.5	15,965.7	6,208.8	28,356.8

Source: [7; 8].

Over the past few years, profit from various forms of management, for example: total investments have increased, in parallel with 2016, to UAH 172,367 thousand, which is related to revenues to the state budget decreased in 2016 and amounted to 2,673.5 thousand UAH, local revenues the budget also increased by 165,119.9 thousand UAH.

The results are positive from the sale of agricultural crop production, as we can see that the return on investment in the Rivne region has a positive shade.

In Table 2, there are presented data on the profit of different forms of farms obtained from the sale of crop production for the years 2010-2016.

In 2016, the profit from crop sales accounted for 2,864,322 UAH, being three times higher than in 2010.

The highest share in the total profit belongs to personal peasant farms which in 2016 was 89.9 % compared to 84.5 % in 2010.

Table 2. Farms' gain from the sale of crop production (thousand UAH)

	Total profit	Personal peasant farms	Farms
2010	934,237.6	790,012.5	144,225.1
2011	1,112,694	947,072.2	165,622.2
2012	1,359,086	1,082,505	276,580.6
2013	1,536,468	1,212,452	324,016.5
2014	2,341,511	1,970,696	370,815.1
2015	2,565,743	2,340,543	390,567.2
2016	2,864,322	2,576,743	420,975.3

Source: [7]

Correlation analysis of available data is carried out. It was found that the profit of private peasant farms has a high linear dependence on budget investments, own funds of enterprises, loans, as well as other sources of financing. Farmers, however, depended heavily on state budget funds, but more dependent on foreign funds than private peasant farms (OSG).

Earnings and OSG and farms have a high level of linear dependence on the use of mineral fertilizers, and OSG - also organic.

For farms, a stronger logarithmic relationship between profit and year; for OSG stronger linear. The outcome of the correlation analysis is presented in Table 3.

Table 3. Coefficients of correlation linear dependence farm returns from investments and fertilizers

Correlation of profit with magnitude	Personal peasant farms	Farms
Year	0.906317	0.980639
Investments from the state budget	-0.531353	-0.38868
Investments from local budgets	0.223015	0.000854
Own funds of enterprises and organizations	0.650037	0.571784
Loans and other loans	-0.611323	-0.7857
Investments of foreign investors	-0.345685	-0.76025
Other sources of funding	0.715122	0.616773
The rate of organic fertilizer application	0.609123	0.44268
The rate of mineral fertilizer application	0.624278	0.750878

Source: author's results.

According to official statistical data, a nonlinear forecasting model for estimating farm returns from different types of investments and type of management has been constructed, and a regression analysis has been carried out. This prognostic model made it possible to estimate future profits from OSG and farms for the classical scheme of use of fertilizers and the transition to organic production.

Multifactor predictive nonlinear regression model (profit of OSG and farmers from investments)

For the profit model of OSG, regression dependence has the form:

$$y = a_0 + a_1 Yr + a_2 Ln(Db) + a_3 Ln(Lb) + a_4 Pb + a_4 Ln(Cr) + a_5 For + a_6 Oth + a_7 Ln(Org) + a_8 Min \quad (1)$$

For a profit model for farms is:

$$y = a_0 + a_1 Ln(Yr) + a_2 Db + a_3 Ln(Lb) + a_4 Ln(Pb) + a_4 Ln(Cr) + a_5 For + a_6 Oth + a_7 Ln(Org) + a_8 Ln(Min) \quad (2)$$

where:

a_0-a_8 - regression coefficients,

Yr - year

Db - public investment

Lb - investment in funds local budgets

Pb - own funds

Cr-loans

For - a profit model for farms:

For - foreign investment

Oth - other means

Org - Norms of Organic Fertilizer

Min - Mineral fertilizer application rates

y - profit.

The obtained model was used to predict the profit of OSG and farms by 2023 in the event of a transition to a model of organic production, as well as a partial replacement of organic fertilizers by animal waste. The outcome of the calculations is presented in Table 4. It is found that in the case of transition to an organic model of enterprise, enterprises should increase the prices for

products by approximately three times to maintain the existing level of profitability.

The urgent thought should be given to efficiency of the land structure in the Rivne region, taking into consideration the consequences of the development of new forms of proprietorship and management, on the one hand, and environmental requirements caused by the threatening state of the land fund of the region, on the other.

Table 4. Forecast of the profit of OSG and farms with partial and complete transition to organic production

	OSG	Farms	OSG	Farms	OSG	Farms
2017	3,266,700	121,792	1,011,719	116,537	2,270,022	134,624
2018	3,409,794	103,885	1,055,498	99 ,163	2,351,535	117,442
2019	3,536,537	85,477	1,108,091	81 ,772	2,441,316	100,230
2020	3,392,020	61,612	1,174,928	64 ,365	2,544,946	82,988
2022	3,616,663	44,246	1,268,340	46 ,938	2,674,784	65,717
2023	3,907,809	26,853	1,428,150	29,486	2 ,870 ,724	48,413

Source: calculated by the author

This problem has a high level of practical significance, especially taking into account the wide variety of natural and economic conditions that complicates the implementation of unified solutions and approaches. Since scientific and practical research should be accompanied by the development of multidirectional projects for the restoration of degraded, low productive land, the problem of protection and rational use of agrarian land must be regarded as a combination of managerial, economic and environmental measures. Since the condition is the basis for building an organizational and economic mechanism. Nothing but this complex of measures makes it possible to combine environmental requirements with the land quality and the economic potency of its usage, and the isolation of the organizational component is aimed at the harmonious combination of these components. That is, because of the introduction of a set of incentive measures aimed at soil protection, increasing their fertility, the way to increase the agricultural production output as well as enhancement of its quality, ensuring the boost of the managerial efficiency of enterprises opens.

According to O.D. Hnatkovych, investments in agricultural enterprises are a socio-economic category that expresses the relationship between legal entities, individuals and the government in the process of investing assets in the expansion of land tenure of enterprises and improving the fertility of existing land for entities with a view to obtaining at some time profits by agricultural enterprises by mobilizing their capital, rationalizing the structure and perfecting the economic efficiency of land use [3].

It should be noted separately that investments from the EU countries are very important for Ukrainian economy sectors, especially for agriculture. EU enlargement to the East should have a positive impact on the flows of direct European investment in Ukraine. According to scientists, the rapprochement with the EU and the development of economic cooperation with this bloc historically contributed to the internationalization of the bordering states' economies and the extension of their specialization in the international division of labor [3, 4].

Research shows that the greatest problem of low output of agrarian land use has low environmental stability. The level of investment into land use is understood to be important in generation of the profit of crop farming in the Rivne region. Most landowners and land users are trying to rebuild their business activities by following all the requirements of use. Nowadays, the issue on the proper use of lands under farming and land conservations is almost devoid of both ecologically and economically, the solution of this question requires funding and investment in such a way that the owner who received income from the receipt of organic gross crop production could correctly do everything calculate. Quite often we see that tenants who

deliberately violate the environmental legal standards on land use.

Currently, due to reforms in agriculture, the relations between investors and farmers have significantly changed. Active development should receive all forms of investment. Together with other economic instruments, the investment, in the opinion of the author, is intended to take a key position in stimulating production and strengthening the economy of the country and the region.

The modern system of investing is no longer marked by the kind of policy that was customary for the time of restructuring. It is more liberal: the investor himself chooses those investment-attractive objects, which services they would like to use. The rights and obligations of the investment borrower are stipulated in the investment agreement by mutual consent. Such a system, in the opinion of the author, will create conditions for inter-farm competition. However, studies have shown that investment involvement in the sphere of agriculture does not fully meet the requirements of a market economy:

-the imperfectly worked out mechanism of investment (in all rural areas occupy commercial banks that provide preferential lending and investment in rural areas at their own cost and resources);

- there is no support for agriculture from the state, which ensures the effective functioning of agricultural production;

- loss-making activity of farmers and private farms, which prevents the return of received investments. Such a system requires the correction or reform of the overall course of reforms and, in particular, changes in the agricultural investment system. A balanced level of utilization of land resources, including in agriculture, can be achieved on the basis of a system of economic measures [1; 6]. Since balanced agricultural development implies not only the productive use of the agro ecosystem, but also the return to it of the functions of the natural ecosystem, that is, the ability to self-reproduce. [2; 5; 9].

In our opinion, an all-embracing attitude to the issues of the investment resources establishment and the enhancement of the investment process as a set of norms and rules of investment of farms and private peasant farms is required. Investment services for agriculture at the moment must include several stages, including the programming, presentation, use and return of investment funds in the future.

At the same time, high efficiency of land use will contribute to increasing the volume of environmentally safe products and growing of high-quality products and expanding agricultural exports, preserving biodiversity in the country.

The ecological component of investment projects is necessary to ensure the balance of land resources and consistency with economic and environmental indicators to obtain an effective result. Since the state and investors should be stakeholders.

Foreign investment can be the basis not only for a return to high growth rates of production, a significant acceleration of innovation recovery of the Ukrainian economy and agriculture in particular. It should be noted that with the transition to a balanced land use, there is improvement in ecology the integral part of investment activity.

It is possible to program investment investments based on investment directions of farms. The economy or enterprises that have a stable position in commodity markets, these areas should be an integral part of their programs of financial and social development in the future. As regards ensuring the circulation of capital and increasing commercial operations driven by the program for market participants, they are enhanced by investment resources.

In order to trigger the rational usage of agrarian land, an organizational and economic mechanism has been developed, in the structure of which there are four systems: security system, functional system, target system (Fig.1).

The normative-legal, institutional, informational, implementing and effective block of organizational-economic mechanism, which forms the subsystem of external and

internal support of agricultural lands use, is proposed.

The institutional unit of functioning derives from the instrumental basis of agricultural land use, which is the main scientific problem that causes the objective need to create an effective institutional structure of regulation of the legal framework of land resources.

The institutional block depends on the state of land resources use and development at the regional level regarding the protection and improvement of their soil fertility.

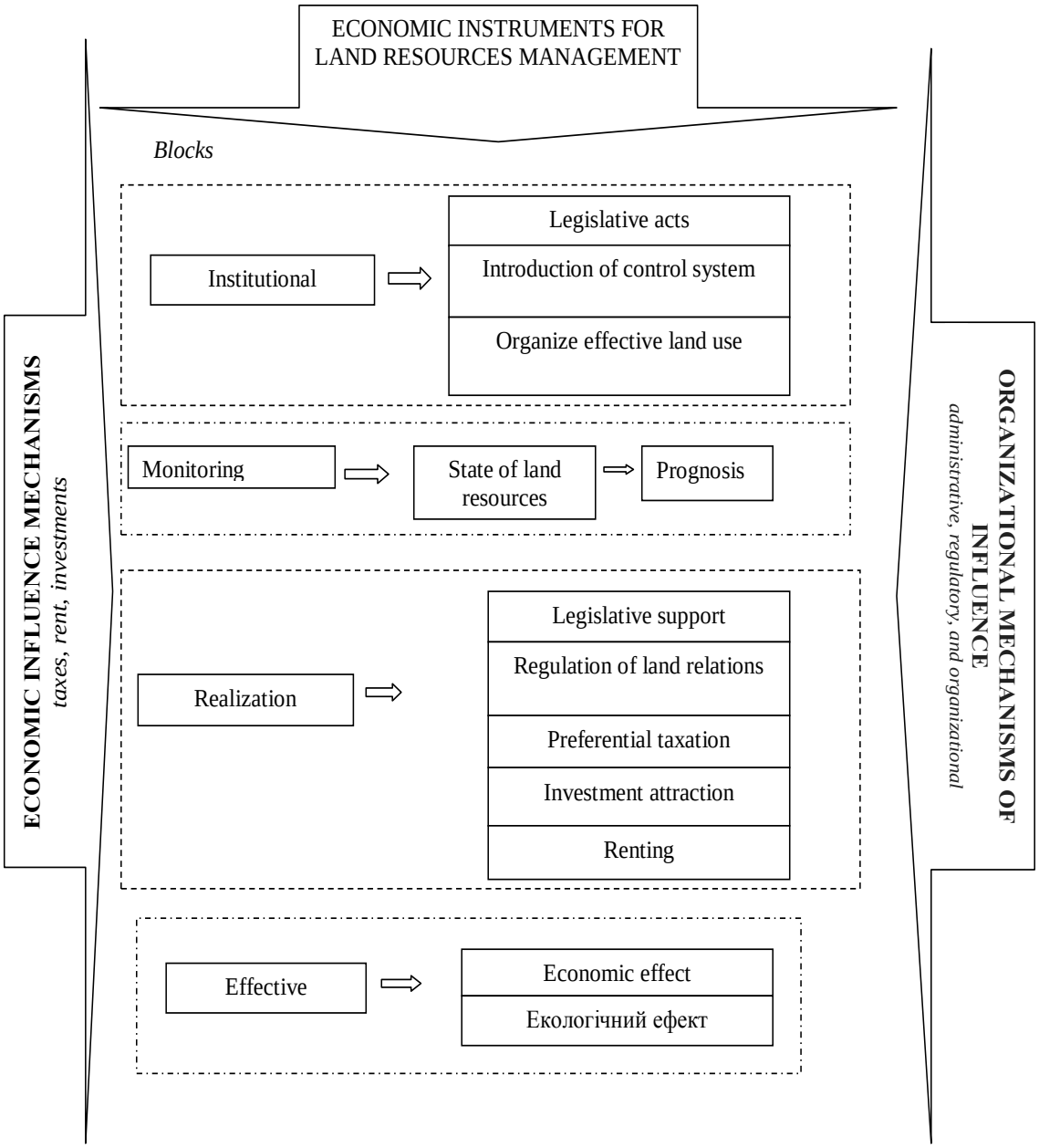

Fig.1. Organizational and economic mechanism of land use
Source: author's development.

Ensuring balanced production development should be achieved through economic activity between harmonization of equilibrium and the reproductive potential of the land.

A significant factor of the negative changes in the state of land resources is the imperfection of the management system, the insufficient amount of organic and mineral fertilizers; significantly plowed land; application of

heavy machinery; reducing the area of reclaimed land while simultaneously increasing the area of disturbed lands.

The implementation block offers instruments for preferential taxation of the organizational and economic mechanism for the utilization of land resources, may be implemented by enterprises that produce environmentally friendly products, we are offered tax benefits of 5-8 years in agricultural enterprises and farms that contribute to the financial situation.

It is proposed to attract investments in the sphere of land tenure as they should consist in the development of investment projects at the regional and local levels. Foresighting of widely varying mineral fertilizers for the use of organic fertilizers.

An assessment of the effectiveness of the organizational and economic mechanism for using land resources can be achieved through a productive block that shows economic and environmental impacts. In particular, ensuring the rational use of lands under farming and effective use of the economic mechanism and reproduction of soil fertility. We are invited to use the economic mechanism with the help of levers and tools. Using the mechanism of economic stimulation of the elements of the functional block (organization, stimulation) will ensure the receipt of positive results in the future (the result block).

At this stage of development of land relations, introduction of new approaches to ensuring ecological and economic directions of economic use, reproduction and preservation of land resources of the region is anticipated. Analysis of the major indicators of land use by economic entities shows that reforms in the agricultural sector have practically not yielded positive production results and did not solve the problem of ensuring rational ecologically safe and efficient use and comprehensive protection of land resources.

CONCLUSIONS

The following directions should be noted for the effective functioning and economic stimulation of rational use of the land under farming:

-to introduce a comprehensive system of state standards, norms and rules in the field of use, protection and restoration of land resources;

-differentiation and classification to implement measures to protect land and environmental, land stabilization at different hierarchical levels (national, regional, local) and types of funding;

-to develop regional schemes for the formation of ecological networks for the preservation of landscape biodiversity;

-to preserve degraded, unproductive and techno-contaminated lands;

-to stop the extraction of especially valuable lands, in particular, agricultural purposes for non-agricultural needs.

More attention needs to be paid to the use of land, given that organizational measures need less effort to implement. The basis should be the principle - land use should be profitable, provided the components of the environment state are taken into account in determining the factors of economic efficiency. Thus it will be possible to avoid useless unproductive costs and to prevent the risk of harm to the land, the more so that often the deterioration of land is irreversible.

REFERENCES

[1]Furdychko, O.I., 2011, Stalyj rozvytok sil's'kyh terytorij na zasadah ekologobezpechnogo agropromyslovogo vyrobnyctva [Sustainable development of rural areas on the basis of ecologically safe agro-industrial production] Visnyk agrarnoi' nauky [Bulletin of Agrarian Science] 3. [Ukraine].

[2]Gliessmann, S., 2001, Agroecosystem sustainability Developing Practical Strategies, Florida, pp. 130.

[3]Gnatkovych, O.D., 2011, Naprjamy zaluchennja investycij u zemli sil's'kogospodars'kyh pidpryjemstvom [Areas of attraction of investments in land of agricultural enterprises]. Visnyk Hmel'nyc'kogo nacional'nogo universytetu. Ekonomichni nauky [Bulletin of the Khmelnytsky National University. Economic sciences]. 2 Vol.2.

[4]Grons'ka, M.V., 2007, Rozvytok innovacijno-orijentovanogo zemlekorystuvannja [Development of innovation-oriented land use] Extended abstract of candidate's thesis. Mykolayiv [Ukraine].

[5]Lomborg, B., 2001, The Skeptical environmentalist: measuring the real state of the world. Cambridge University Press, Cambridge. pp. 511.

[6]Makedons'kyj, A.V., 2009, Analiz vykorystannja zemli Harkivshhyny v umovah transformacii'

zemel'nyh vidnosyn [Analysis of the use of land in the Kharkiv region in the context of the transformation of land relations] Transformation of land relations to market conditions. Vseukr. kongresu vchenyh ekonomistiv-agrarnykiv 26-27 ljutogo 2009 roku (pp.316-320) Kyi'v [Ukraine].
[7]Mishenkovoi,' L.S., 2016, Sil's'ke gospodarstvo Rivnenshhyny [Agriculture of the Rivne region]. Main Department of Statistics in Rivne Oblast. Rivne [Ukraine].
[8]Moroz, Ju.V., 2016, Statystychnyj shhorichnyk Rivnens'koi' obl. [Statistical Yearbook of Rivne Region]. Main Department of Statistics in Rivne Oblast. Rivne [Ukraine].
[9]Simon, G.L., 1996, The Ultimate Resource 2. Princetown, NJ: Princeton University Press., pp. 30-44.
[10]Dobryak D.S., Tykhonov A.H., Hrebenyuk N.V. (2004) Teoretychni zasady staloho rozvytku zemlekorystuvannya u sil's'komu hospodarstvi: [monohrafiya] [Theoretical principles of sustainable development of land use in agriculture: [monograph]. Kyiv: Urozhay. p.134. [Ukraine].
[11]Drebot O.I., Vysochans'ka M.Ya. (2014) Ekoloho-ekonomichne zabezpechennya ratsional'noho vykorystannya zemel'nykh resursiv Ukrayiny [Ecological and economic support of rational use of land resources of Ukraine]. Taurian Scientific Journal: Scientific Journal, no. 88, Kherson: Grin D. S., p. 434. [Ukraine].
[12]Palyanychko N.I. Stale zemlekorystuvannya yak holovnyy kryteriy ekoloho-ekonomichnoyi otsinky vykorystannya zemel' sil's'kohospodars'koho pryznachennya [Stable land use as the main criterion for the ecological and economic assessment of the use of agricultural land] (electronic journal). Available at: http://eapk.org.ua/sites/default/files/eapk _ files/2011/2011_02/11_02_03.pdf. [Ukraine].