Artículo de investigación

State support improvement for ecological land-use in terms of transition to rural territory sustainable development

Mejora del soporte estatal para el uso de tierras ecológicas en términos de transición al desarrollo sostenible del territorio rural

Melhoria do apoio do estado para o uso da terra ecológica em termos de transição para o desenvolvimento sustentável do território rural

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Abstract

The problems of rational land use, the restoration of land resources, the provision of population with safe food and favorable living conditions for the rural population are especially urgent in modern society. At that, there is a need to change the technogenic development of agricultural production into so-called "sustainable" development. The state support for ecological land use in Belgorod region includes such activities as soil fertility support through meliorative afforestation, the liming of acidic soils, the agricultural biology development, as well as the introduction of biotechnologies. However, in terms of intensive land use, it is necessary to strengthen the financial support of domestic agricultural producers who use land resources rationally. In order to use budgetary funds more efficiently, it is necessary to expand the range and improve the mechanism of state support provision for the restoration of land resources in the following areas: the subsidies for the seeds of perennial grasses, green-manure crops and honey plants; the subsidies for the reimbursement of organic fertilizer

Resumen

Los problemas del uso racional de la tierra, la restauración de los recursos de la tierra, la provisión de una población con alimentos seguros y las condiciones de vida favorables para la población rural son especialmente urgentes en la sociedad moderna. En ese sentido, es necesario cambiar el desarrollo tecnogénico de la producción agrícola en el denominado desarrollo "sostenible". El apoyo estatal para el uso ecológico de la tierra en la región de Bélgorod incluye actividades tales como el apoyo a la fertilidad del suelo a través de la repoblación forestal, el encalado de suelos ácidos, el desarrollo de la biología agrícola, así como la introducción de biotecnologías. Sin embargo, en términos de uso intensivo de la tierra, es necesario fortalecer el apoyo financiero de los productores agrícolas nacionales que utilizan los recursos de la tierra de manera racional. Para utilizar los fondos presupuestarios de manera más eficiente, es necesario ampliar el alcance y mejorar el mecanismo de apoyo estatal para la restauración de los recursos de la tierra en las siguientes áreas: los subsidios para las semillas de

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transportation costs; the subsidies for organic matter content increase.

Key words: ecologization, ecological land use, state support of ecological land use, sustainable development of rural areas, biological farming.

hierbas perennes, cultivos de abono verde y plantas de miel; los subsidios para el reembolso de los costos de transporte de fertilizantes orgánicos; las subvenciones para el contenido de materia orgánica aumentan.

Palabras claves: Ecologización, uso ecológico de la tierra, apoyo estatal al uso ecológico de la tierra, desarrollo sostenible de las zonas rurales, agricultura biológica.

Resumo

Os problemas de uso racional da terra, a restauração dos recursos da terra, o fornecimento de alimentos seguros população-guro e condições de vida favoráveis para a população rural são urgentes especial-mente na sociedade moderna. Nesse sentido, é necessário mudar o desenvolvimento tecnogênico da produção agrícola no chamado desenvolvimento "sustentável". Apoio do Estado para o uso da terra ecológica na região de Belgorod inclui actividades como o apoio a fertilidade do solo através do reflorestamento, calagem de solos ácidos, o desenvolvimento de Biolo-gy agrícola e a introdução de biotecnologias. No entanto, em termos de uso intensivo da terra, é necessário fortalecer o apoio financeiro dos produtores agrícolas nacionais que usam os recursos da terra racionalmente. Para usar recursos do orçamento de forma mais eficiente, é ne-Cesario ampliar o alcance e melhorar o mecanismo de apoio do Estado para a res-tauración dos recursos da terra nas seguintes áreas: subsídios para sementes de gramíneas perenes, culturas de estrume verde e plantas de mel; Subsídios para o reembolso de custos de transporte de fertilizantes orgânicos; Subsídios para o aumento do conteúdo de matéria orgânica.

Palavras-chave: Ecologização, uso ecológico da terra, apoio estatal para o uso ecológico da terra, desenvolvimento sustentável de áreas rurais, agricultura biológica.

Introduction

The social and economic transformations carried out in Russia are aimed at the development of a socially oriented market economy. The problems of rational land use, the provision of population with safe food and favorable living conditions for the rural population are especially urgent in modern society. The development of bio-organic (ecological) agriculture has become one of the ways to reduce the negative impact of agriculture on nature and man. The producers of bioorganic food products offer alternative approaches to farming that exclude risks to the environment and consumers (Adukov et al, 2013; Gaitov, 2005; Gorokhova & Zabelina, 2007; Derzhavin, 2013; Zhilyakova et al, 2013; Demiyeva, 2017).

Taking into account the growing ecological problems and the strengthening of environmental responsibility before present and future generations, it is necessary to reorient the structure of agricultural production in such a way that it meets the global requirements - sustainability and environmental safety. Therefore, there is a need to change the technogenic development of agricultural production for so-called "sustainable" development, while the need for research is intensified by the transition to rural area and the "green" economy sustainable development, and the development of ecological land use concept (Dobrunova et al, 2015; Efimova et al, 2017; Lukin, 2016; Nezhelchenko et al, 2017; Oliva, 2015; Turyansky, Oliva, 2013; Anichin et al, 2017; Villalobos Antúnez & Márceles, 2013).

The purpose of the study is to develop a methodology for the allocation of financial resources aimed at land use ecological safety development in the conditions of transition to rural area sustainable development.

The object of the study was agricultural land use. The most in-depth study was conducted using the example of Belgorod region.

They used the following main methods: monographic during the assessment of individual

indicators of environmental land use and the development of rural areas of Belgorod region; abstract-logical to substantiate the criteria and the indicators for rural area ecological development evaluation; economic and statistical - during the analysis of rural area ecological and economic development in Belgorod region.

Study results

The transition of village to a qualitatively new level of development becomes one of the important state tasks, which is conditioned by the following reasons: the high importance of the agrarian sector in terms of country food security problem solution, the need to provide the population with full-fledged and ecologically clean food products, a significant differentiation concerning the level and quality of life between the population in rural areas and urban areas; insignificant positive results of the state influence on the solution of a number of ecological and economic problems in respect of rural area development.

Today, the issue of ecological land use is the key issue in the development of agro-industrial complex and rural areas in general. For the Belgorod Region, one of the developed agrarian regions of the Central Federal District, the issue of finding new mobilization opportunities for the development of rural areas and domestic resources to produce high-quality and affordable food is largely related with the solution of environmental problems and the organization of ecological agriculture. Water erosion is the main environmental problem in the agriculture of the Belgorod region, which is attributed to almost irreversible types of soil degradation. The share of eroded arable land is about 48%, while on the average it makes only 21% in the central-chernozem regions.

In accordance with the State program for the development of agriculture, raw material and food market regulation in 2013-2020, an important trend in the development of the agro-industrial complex of the region is the ecologization and biologization of agricultural production on the basis of new technology application in plant growing, domestic animal breeding and food industry in order to save ecological potential and increase food safety.

Therefore, there is the transition to environmentally oriented land use and environmentally balanced development of agriculture in the Belgorod region, which should positively affect the development of rural areas, in particular, public health.

The locomotive of the regional agricultural sector development under modern conditions should be the ecologization of land use, and its state support in the Belgorod region includes such activities as soil fertility support through meliorative afforestation, the liming of acidic soils, the biologization of agriculture, and the introduction of biotechnologies. In 2011 - 2014, 282.2 million rubles were spent to these events at the expense of the regional budget (Table 1)

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Table 1 - The financing of activities for ecological land use, million rubles.

Item №	Events	Years						Total
		2011	2012	2013	2014	2015	2016	
1	The support of soil fertility (meliorative afforestation)	44,3	66,3	10,9	8,6	8,6	2,6	141,3
2	The liming of acidic soils	30,0	40,0	50,0	7,5	-	-	127,5
3	The introduction of biological farming system	20,0	1,8	-	-	-	-	21,8
4	The implementation of Bioenergy and Biotechnology Concept	1,1	1,2	0,5	0,0	-	-	2,8
	TOTAL	95,4	109,3	61,4	16,1	8,6	2,6	293,4

It should be noted that the planned amount of funds to support greening made 503.9 million rubles, of which 56% was financed. Despite the fact that on the basis of project management,

which allows to mobilize resources to solve key problems, a considerable attention is paid to the issues of ecologization in the Belgorod region, nevertheless, many farms, for the sake of achieving rapid economic results, often do not use scientifically sound elements of farming systems, they do not observe crop rotation, do not use the reserves of soil replenishment with organic matter and nutrients (Kulikova et al, 2013; Lopyrev, 2000; Stebakov et al, 2011; Kotlyarova et al, 2013; Kotlyarova et al, 2015). In the context of the transition to the sustainable development of rural areas, more effective financial support is necessary for ecological land use and a rational methodology for the allocation of public financial resources is required. In order to strengthen the state support for ecological land use, it is possible to propose the following areas to expand financial assistance - concessional lending, insurance and state subsidies.

Preferential lending. The state should support agricultural producers on the path of ecological land use by increasing the availability of loans, as well as by loan interest rate subsidizing with the purpose to modernize the production aimed at ecological land use.

One of the effective economic mechanisms of state support for the ecologization of land use is the concessional lending of agricultural enterprises. The attraction of bank loans on the terms of repayment and payment facilitates the increase of efficiency concerning the use of funds and the reduction of time for the implementation of measures on greening.

The system of effective measure concessional lending by banks in the field of ecological land use should stimulate the activities of enterprises to carry out soil protection measures (due to the priority of preferential terms) with full compensation of funds spent by banks for loan issue at a reduced interest. The compensation for losses to the bank during preferential loan provision can be made through the provision of tax credits to commercial banks (the reduction of bank profit taxable base, the reduction of tax rate profit, the exemption from certain types of taxes).

It is necessary to use several types of concessional loans in the practice of environmental land use: 1-2 year loans to provide seasonal activities, as well as the loans that are designed for longer periods (up to 5 years) on production needs to improve environmental land use. Besides, in order to expand government support, it is necessary to provide subsidies to reimburse the part of the costs to pay interest on loans received by agricultural producers for the development of production, the processing and logistics support to produce environmentally friendly products. Preferential loans should be strictly granted depending on the type of an agricultural enterprise and its development, as well as the nature of the final production and the technogenic burden on the territory.

Preferential insurance. The system of preferential insurance should provide for future crop insurance used to produce environmentally friendly products and the insurance of liability for land resource damage and pollution, which covers the costs of soil pollution effect elimination (environmental insurance). Environmental insurance, which provides for differentiated rates depending on the level of land resource rational use, should stimulate agricultural enterprise economically to prevent the pollution of land resources.

It is important to compensate some costs of agricultural producers who paid the insurance premium accrued under the agricultural insurance contract, aimed at income loss possibility reduction during the production of environmentally friendly products: the impact of natural phenomena dangerous for the production of crops; the penetration or the spread of pests, if such events represent the emergency situations in the agro-industrial complex.

State subsidies. The system of subsidies is one effective mechanism of state support, but at the same time it needs to be improved. The subsidizing of agricultural producers should be provided, first of all, in order to stimulate the ecological land use. Currently, a large number of provided subsidies has an anti-environmental effect, stimulating the use of pesticides, mineral fertilizers, heavy agricultural machinery, global and irrational irrigation and drainage measures in agriculture.

At all times agrarian business is not only a strategically important sector from the point of view of food security provision, but also a reliable and payback type with the lowest risk factor, achieved through systematic support and direct state influence (Gorokhova & Zabelina, 2007) For a more efficient use of budgetary funds, it is necessary to expand the range and improve the mechanism of state support provision in the following areas:

1. Subsidies compensating some costs of the acquired seed material for perennial grasses, green manure crops and honey plants.

The subsidies for the compensation of some costs concerning the acquired seed material for

perennial grasses, green manure crops and honey plants need to be paid to agricultural producers who protected the project of the biological farming system introduction in the amount of 100 percent of the acquired seed material cost.

In order to receive a subsidy, agricultural producers permanently producing soil protection measures must submit a minimum package of documents consisting of subsidy volume calculation, the copies of contracts for the purchase of seeds, as well as the certificates issued by the relevant seed certification bodies to the department of the regional agro-industrial complex. The enterprises receiving the subsidy for the first time must provide a full package of documents, including invoices, the invoices for good claiming, the payment documents certified by the recipients of subsidies, the acts of seed and planting material consumption, the information on the results of sowing for the harvest of the current year (the forms federal statistical observation 4-CX, 1-farmer).

2. The subsidies for the reimbursement of organic fertilizer transportation costs.

Subsidies are provided to agricultural producers to reimburse organic fertilizer transportation costs. The amounts of subsidies are determined according to transportation tariffs and transportation distances (Table 2).

Table 2 – Organic fertilizer transportation rates

Transportation distance, km	Transportation rate for 1 ton of organic fertilizers, rub.
5 - 15	33 - 74,3
15 - 25	74,3 - 107,7
25 - 35	107,7 - 132,3
35 - 45	132,3 - 156,9
45 - 55	156,9 - 179,1
55 - 65	179,1 - 198,8
65 - 80	198,8 - 228,3

In order to receive subsidies from the regional budget for these purposes, the recipient of the subsidies submits the following documents to the department of the regional agro-industrial complex during work performance:

- the project of organic fertilizer introduction into soil;
- the certificate of the executed works, approved by the department of the regional agro-industrial complex;
- the register of commodity-transport waybills for organic fertilizer transportation with the indication of the transportation distance, signed by the recipient of the subsidies;
- the estimate memorandum about the subsidies from the regional budget for transportation cost reimbursement;
- the document indicating the legal address of an enterprise, payment details, TIN, OKTMO and contact phone number.

3. Subsidies for organic matter content increase.

Subsidies are provided on financial support for the implementation of measures to improve the fertile soil layer, which provides the support to agricultural producers in the field of crop production, carried out in the form of subsidies to reimburse some costs for the implementation of agricultural works, the increase of agricultural production environmental safety, fertility and soil quality per 1 hectare of the crop area for agricultural crops in the amount of 2,177.48 rubles. The subsidy is allocated on a differentiated basis (Table 3).

Table 3 – Corrective coefficients of budget subsidies based on land use efficiency

Indicators	Land use efficiency (LUE), %	Correcting ratio
Land use efficiency above the average value	100-120	1,0
	121-140	1,2
	141-160	1,4
	More than 161	1,5
	81-100	1

Land use efficiency below the average value	61-80	0,8
	41-60	0,6
	Less than 40	0,5

The distribution of subsidies via the correction factor is aimed at agricultural production efficiency increase and presupposes the provision of food security in Belgorod Region by increasing the volume of ecologically clean agricultural products.

At the same time, an active support is needed on the part of the state through economic stimulation of measures for agro-industrial production by construction co-financing and the reconstruction of treatment facilities and the development of new environmentally friendly methods of land management and agriculture in general. In our opinion, this may be the next step towards the greening of land use and the gradual transition to ecological agriculture.

Conclusions

The main obstacle to the introduction of modern environmental technologies in agricultural production and the greening of agriculture is the lack of developed environmental legislation. In modern economic conditions, it is necessary to create the system of legislative and normative acts in accordance with international standards that will allow Russian agricultural producers not only to produce but also to sell environmentally friendly products in domestic market, which is especially important for the further development of agriculture and the preservation of public health.

Therefore, the following measures are necessary for the development of environmentally friendly product market:

- the marking of environmentally friendly products with appropriate marks on the shelves of stores;
- the creation of the Internet portal containing the register of regional producers producing environmentally friendly products with the information about each of them, as well as the information on environmentally friendly, natural products in order to promote healthy nutrition.

As a very important area of support, special educational courses on organic farming (it is advisable to set up special educational centers on the basis of higher education institutions) should be considered, which in its turn should be a sine qua non for financial support obtaining. Besides, an extensive informational support system for beginning "eco-producers" should be created.

The integrated use of all proposed measures to promote the ecological use of land will significantly improve the sustainability of rural development, will ensure food security and food independence of the country as the basis of population social well-being.

Thus, with the creation of a well-developed and effectively functioning system of state support for ecological land use, organic agriculture can become a new niche and the sphere of influence for Russia, acting as one of the potential points of rural growth, and the proposed methodology will allow more rational use of budgetary funds, to increase the interest of domestic agricultural producers in more active use of organic fertilizers to reduce the pollution of land resources and perform the transition to the sustainable development of rural areas.

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