

Agricultural land use in the post-reform period (2000-2020) in a market economy

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Abstract. The formation of agricultural land use adequate to the tasks of the market economy is the most important task of the post-reform period. Agrarian transformations were of a social and political nature and solved the problems of transition from a planned to a market economy. To implement them, we used not the experience of Russia in previous years, but examples from the practice of advanced economies of the European Union. Therefore, the appearance of such a phenomenon as unused land (in general, characteristic of the crisis periods of the market economy) caused a negative perception. The paper considers this problem as an important social and economic phenomenon and suggests ways to solve it. For this purpose, the technology of identifying and detailed study of the state of the land is proposed. The identification of the natural suitability for the cultivation of the main agricultural crops is confirmed by ensuring sufficient efficiency of crop production. Based on the analysis of the conditions of land use (labor, capital and energy supply) and their legal status, the economic feasibility of involving unused plots in economic turnover is established. This will make it possible to make the necessary and reasonable decisions to restore the land and resource potential of agricultural production. To ensure the controlled and systematic implementation of the program to solve the problem, a state-commercial center is being created in the subject of the Federation, which organizes, controls and finances the activities carried out.

1. Introduction

One of the most significant events in recent decades for Russia is the agrarian reform, which has formed a new basis for the economy of the agro-industrial complex (AIC). The main direction of transformation of this industry (and also all the others) is a paradigm shift in the direction of development – from the economy of directives to the economy of incentives. At the same time, the market has become the main regulator of agricultural production with a variety of forms of management. The property system of the main factors of production, including land resources, has undergone serious transformations [1].

The land reform as the most important component of the economic and agrarian reforms has formed a new land system. Its main postulates - are the diversity and equality of land ownership forms in the new land use system, based on the diversity of forms of economic use of land, the diversity of the size of land that provides various organizational and legal forms of management. Basically, the goals of the land reform have been implemented, but with the change of the land system in the system of land relations and land use, a significant number of shortcomings have formed that hinder the rational use of land and efficient production. Instead of a smooth transition to gradual transformations, they stopped altogether. This was facilitated by the crisis phenomena in the economy. The past transformations began to be



preserved. Therefore, there is already a lag between land legislation and legislation in the field of agricultural production, which is especially noticeable at the on-farm level. The incompleteness of transformations in the field of property organization and the preservation of common (shared and joint) ownership of land led to a significant financial burden on agricultural production with lease payments and the loss of rational use of land during a short-term (up to 1 year) lease of property. In developed countries, there is also a common property, but it mainly applies not to property, but to capital (corporatization). This allows the economic entity to quickly and efficiently manage the existing and acquired property.

There has been a change of use paradigms in the land use system. The old paradigm was to meet the ever-increasing needs of society for food and raw materials. This contributed to the maximum increase in the area of agricultural land, the completeness and intensity of their use.

At the same time, strict state control over the correct and full use of land was ensured. A new paradigm has replaced it – ensuring the production of profit, effective surplus value and efficient production of agricultural products [2]. This has led to the fact that the production is in demand for the use of land that ensures efficient production of products. Currently inefficient or insufficiently efficient resources and processes (including land and its use) may not be used, and forcing commodity producers to use them - is a violation of the basic postulates of a market economy. An acceptable way is to create an economic interest in solving this problem [3, 4]. The change in the paradigm of land use and the desire of agricultural producers to ensure sustainable effective development in a market economy led to the disposal of part of the previously used land from agricultural turnover. Therefore, the emergence of a reserve of resources (including land) - is an objective phenomenon to ensure the efficiency and dynamic stability of the market economy. It ensures the survival and maneuverability of production. However, the decrease in the land resources used in agriculture has acquired such dimensions that it has caused concern to the State. According to the deputies of the State Duma, the reduction amounted to 50 million hectares of agricultural land. The President of the Russian Federation outlined the need to solve the problem with 17 million hectares of arable land. According to the Ministry of Agriculture of the Russian Federation, there are 115.7 million hectares of arable land in the country, and in 2018 only 79.6 million hectares were sown. Therefore, it is difficult to attribute 36 million hectares only to the presence of a fallow area, while the actual non-use of arable land is 31%. (Fig. 1)

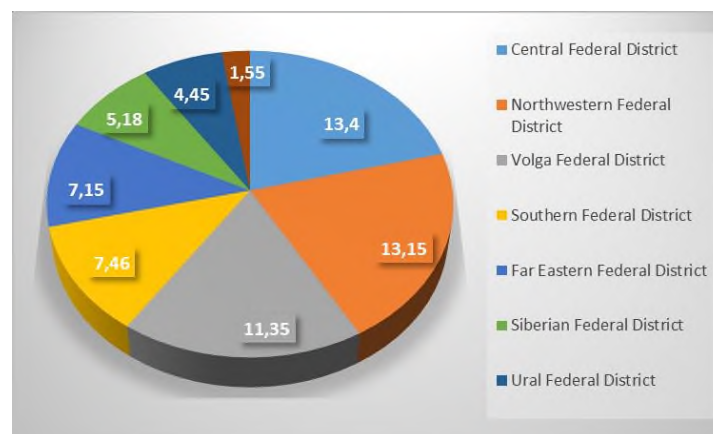


Figure 1. Share of unused agricultural land by federal districts of the Russian Federation [5].

In the Omsk region, the area of unused land reaches 700-800 thousand hectares. According to the Ministry of Agriculture of the Omsk region, in 2018, out of 4.2 million only 2.9 million hectares of arable land have been sown and, thus, only 69% of arable land is used. At the same time, it should be noted that these figures are close to the data given back in the period of the planned economy by the Omsk Department of the State Institute for Land Resources (SILR) - in general, up to 12% of arable land in the region is not suitable, and 15% is not effective for use in market production, i.e. 25-30% of the arable land used is also actually unsuitable.

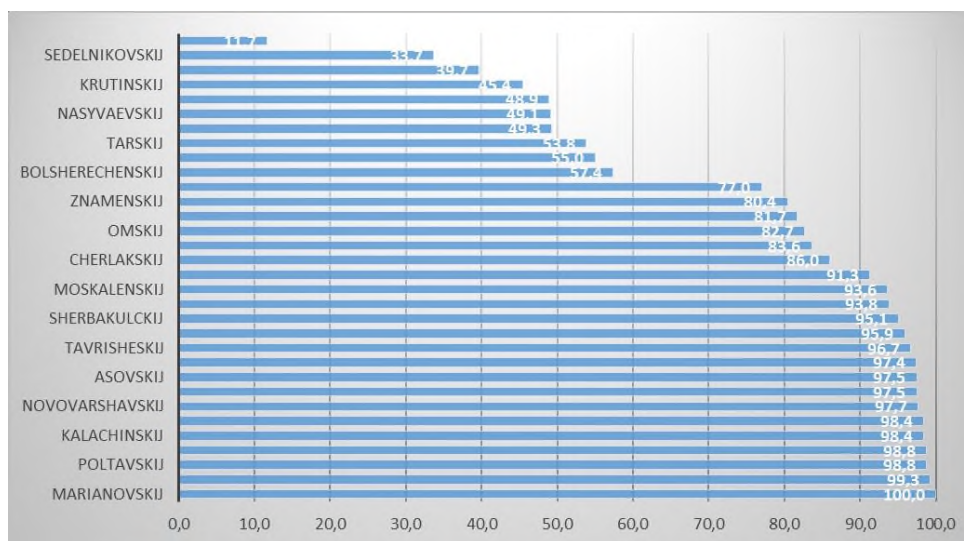


Figure 2. The share of the used arable land in the Omsk region, in %.

According to the regional agricultural management bodies, the degree of non-use of land is increasing in the northern regions. In the steppe and a significant part of the southern forest-steppe zone, it does not exceed 10%, but in the north, for example, in the Omsk region, it reaches 50-70% of the available arable land.

2. Research methods

The sources of information for the study were information reports on the use of land of the Federal Register and Rosstatistics, reports on the financial and economic activities of agricultural organizations over the past 10 years. Trends in changes in the areas of agricultural land and crops have shown a significant decrease in the completeness of the use of arable land. When assessing the suitability of arable land, the materials of soil surveys and land assessment were used. By direct calculations, the economic consequences of this phenomenon for agriculture are established. The assumption that not all unused lands are necessary and possible to involve in economic turnover has been confirmed.

3. Results

Non-use of land on significant areas of agricultural use should be considered a significant social and economic problem of Russia. The economic consequences of this phenomenon for Russia are tangible, and they are associated, first of all, with the non-receipt of crop production in the amount of more than 100 billion rubles and, accordingly, tax revenues (VAT, land tax, etc.) of more than 40 billion rubles. For the Omsk region, the economic losses are less, but still significant. The amount of non-received crop production is more than 5 billion rubles, and tax revenues (VAT, land tax, etc.) are about 2 billion rubles. The reduction in the scale and volume of agricultural production causes more long-term negative consequences in the industries that provide the agro-industrial complex - a decrease in profits, increasing total losses by another 20-30%.

The social consequences of not using significant areas of agricultural land are impressive. The decrease in the scale of labor activity in the Russian Federation concerns at least 50 thousand employees, as it leads to a reduction in the amount of total pay per year of at least 10 billion rubles. The decrease in the scale of labor activity in the Omsk region per year affects the interests of 1.5-2.0 thousand people and the amount of payment of at least 0.5 billion rubles. In addition, this leads to a reduction in the payment of dividends to owners of land property, which is at least 20 and 1 billion rubles, respectively. This increases the migration of the rural population and the depopulation of rural areas.

The solution of the problem of involving unused land in agricultural turnover should be considered as a complex social and economic problem of agriculture, affecting not only land resources, but also the development of fixed means of production and labor. The one-sidedness of the problem solution dramatically reduces the effectiveness or makes its implementation impossible.

In our opinion, the elimination of the problem is connected with the consistent solution of the following interrelated tasks:

- identification and positioning of unused land;
- establishment of natural suitability for use;
- establishing the economic efficiency (suitability) of use;
- establishing the legal status of unused land;
- establishment of the economic possibility of using;
- development of proposals on the involvement of unused land in agricultural production, on technologies for the use of arable land, technical support for the use of arable land;
- establishment of legal, administrative and economic measures for the implementation of proposals for the involvement of unused land in agricultural turnover.

When identifying and positioning unused land, it is necessary to take into account that these lands are located, as a rule, in the most problematic regions for the development of agriculture. In the Omsk region, these are the northern regions. They have less favorable natural conditions for growing crops, the lowest population density and the worst economic conditions, the greatest distance from the main transport highways, places of sale and processing of products. However, even in these regions, unused land is spatially dispersed. Therefore, a large-scale survey of the territory is necessary to identify them. It should be preceded by a study of the reporting data on the size of the sown areas, which are reported by agricultural organizations. This allows to pre-set the “addresses” of abandoned lands. To accurately determine the location and areas of these lands, methods of remote land study (satellite images and unmanned aerial vehicles (UAVs)), stock materials and a ground-based field land survey should be used. This, of course, will reduce the costs of conducting these measures, which, even with this technology, will require at least 60-70 thousand rubles per hectare for the Omsk region. At the same time, it is necessary to skillfully combine these methods, which requires a special technique. As a result of this work, an electronic map of land use should be created with the allocation of abandoned land. After their creation, such maps should be constantly updated based on monitoring and current land accounting (Fig. 3). This is the initial information basis for solving this problem and effective land management.

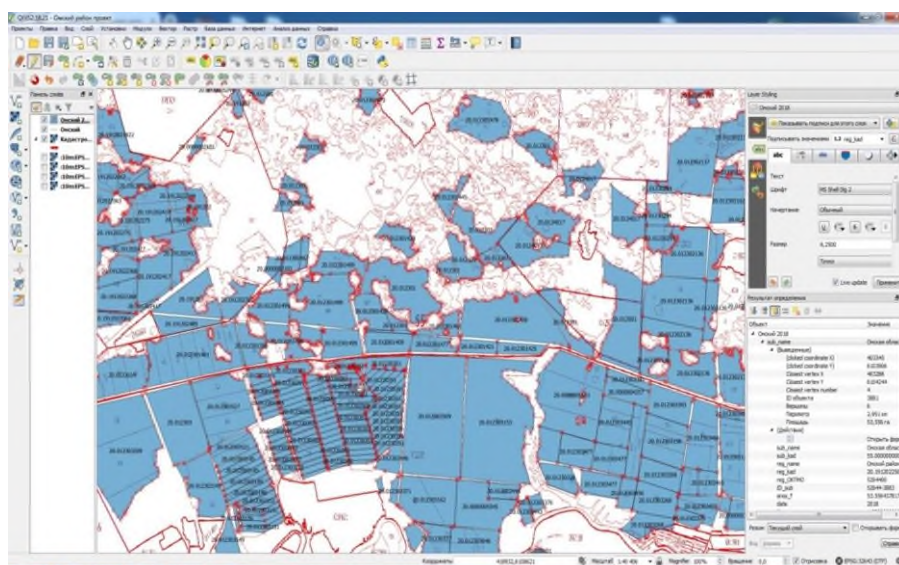


Figure 3. An example of an inventory of agricultural land (own research).

During the period of the planned economy, the desire for maximum volumes of agricultural production contributed to the involvement in agricultural turnover, including suitable and even unsuitable for use land. Therefore, undoubtedly, the necessary stage of solving the problem is to establish the quality and natural suitability of the soils of unused areas. This requires materials from soil and geobotanical surveys. On the basis of these materials, soil scientists and agronomists determine the degree of suitability of agricultural land for growing various crops. As a result of this measure, soil and geobotanical maps of unused land are created or refined, as well as maps of the natural suitability of land for growing various agricultural crops. The obtained data, in addition, allow to determine the list and content of measures that make it possible to transfer individual plots to a state of arable suitability (chemical, hydraulic reclamation, reclamation, rehabilitation). The establishment of natural suitability is also a rather time-consuming operation, requiring at least 40-50 thousand rubles per hectare in the absence of previously obtained materials.

In the process of transition to a market-based economy, the main goal of agricultural land use was to ensure the highest efficiency of crop production. Thus, the land should not only be suitable for cultivation of crops, but also ensure the efficiency of such production. To do this, it is necessary to establish the ability of each plot of unused land to ensure a sufficient level of production efficiency based on the use of land quality indicators – the bonus score and the cost of land. The bonus score and indicators of the cost of unused plots are established on the basis of land assessment materials. By calculation, the potential efficiency of cultivation of the main cash crops is determined (with minimal and average favorable natural conditions and product sales prices). Taking into account the frequency of occurrence of certain conditions, plots are established that provide stable efficiency, inefficiency or a zone of unstable efficiency (a zone of entrepreneurial and investment risk) [5]. This allows to make maps of territories by economic (sustainable and unstable) efficiency, suitability or unsuitability for the possible use of arable land for the cultivation of various agricultural crops.

The land reform has brought another serious innovation to the land use system – land has become property, and its use is associated with the legal status. Land in agricultural organizations is used as their own property, on the right of lease or restriction of someone else's property. Therefore, the identification of the legal status of unused land will allow to establish the presence of the owner, the user, the plots that have lost the owner and the user, unclaimed land shares. At the same time, it is necessary to check the registration of land plots as objects of property (cadastral registration and registration of rights). Based on this, a register of unused land plots is compiled. The presence of a legal status allows to determine the participants in solving this problem and their interrelationships. The main thing is to establish the form and subjects of ownership. This allows to determine the procedure for solving individual planned activities and the measure of responsibility of the performers. In the absence of an owner or the presence of plots with undefined property, the solution of this problem becomes only a state task. If there is an owner of unused land, then the elimination of this phenomenon - is a complex joint task of different levels of government and the owner.

Land resources in the production process, combining into a single whole with labor, fixed and working capital, make up a single balanced land and property complex. Given that the land in this complex is the main determining factor, all other factors are the conditions for its use. It is their presence and the ratio (balance) with the land that largely determine the effectiveness and efficiency of production. One of the important reasons for the non-use of land is the lack of labor and equipment. At the same time, it is necessary to assess not only the state of the conditions of land use, but its balance, first of all, with labor and equipment. This can be done if agricultural organizations exist and have unused land. For those lands that have lost owners or users of land plots that have not been leased, both by municipalities and individuals, such information is not collected. They are free to choose the further direction of production activities, use them and provide the necessary factors of production. Based on the assessment of the conditions of land use, the economic possibility of use is established and a conclusion is made about the objective and subjective reasons for non-use.

All measures to study the conditions and condition of non-use of land are the initial materials for the development of specific measures in the field of improving agricultural land use.

The second stage of this work is the development of proposals for the involvement of unused land in agricultural production. It can be divided into two parts. In the first part, a scheme (project) for involving unused land in agricultural turnover is being developed. The second part should ensure the implementation of these project proposals.

The basis of the proposals being developed are measures for the development of land resources – restoration of soil properties, reclamation, rehabilitation, land use, engineering protection of land, cultural and technical works on former agricultural land, engineering equipment of the territory. All identified areas of unused agricultural land (regardless of the legal status), taking into account the conducted surveys, are analyzed for natural suitability, unsuitable are rejected and are not considered in the future. Based on the assessment of the efficiency of the use of arable land, the effectiveness of measures aimed at involving them in use is determined. At the same time, even persistently inefficient measures can be recommended for further use in carrying out highly effective measures – the introduction of increased doses of fertilizers, land use, rehabilitation, reclamation. The creation of roads, engineering protection of the territory, and reclamation facilities should be included among the supporting measures to involve these lands in the turnover. The costs and effects of providing measures are added to the calculations for each site in proportion to its area. After that, we can talk about the effectiveness of involving the site in arable turnover. All calculations are carried out taking into account the use of zonal-based directions and technologies for the use of arable land: the crop production system, crop rotations, crops, their varieties, the average doses of fertilizers used and chemical plant protection products.

The actual use of agricultural land occurs only if there is the necessary amount of agricultural machinery, buildings and labor (conditions for the use of land). Calculations of the conditions should be made separately, according to the plots of existing owners, users and those who have lost them. In case of refusal of owners and users from these plots, it is necessary to carry out refusal procedures, after that they should also be attributed to the second group of unused land. When making calculations, the average value of the labor and capital security standards is used. This allows to determine the necessary increase in labor, technical means and buildings and the amount of required investments. Attracting labor requires new construction of housing, social and household infrastructure.

The implementation of such large-scale measures requires significant financial resources and a good organization of their implementation. The organization of the financing process can have different schemes, for example, direct investment by the State (federal and regional authorities), private business (investors), agricultural producers, on the basis of subsidies, loans, benefits. However, unused land - is a sign of inefficient agricultural production, subsidization of the municipality and the region. Therefore, the program proposed in this case is likely to have mainly federal funding with the involvement of private investors from other regions and other sectors of the economy. Therefore, the program should be compiled as an open system. The promising main option in this case will be the one where the size of unused land is established, providing effective crop production. In addition, several options are being developed taking into account the possible total amounts of funding. When calculating the necessary financial resources, the planned land, labor resources, fixed assets, equipment are balanced within the allocated financial resources. At the same time, the role of the main determining investments is played by those that are aimed directly at the development of the properties of the land and are objectively inextricably linked with it, the remaining investments are providing and therefore depend on them.

The solution of the problem under consideration is a rather expensive task. For example, up to 20 billion rubles will be required to carry out measures to identify and study unused land in the Omsk region. According to the calculations of E. V. Cherkashina, the cost of carrying out cultural and technical works to involve unused agricultural land in the turnover in the Russian Federation will amount to 180 billion rubles, in the Siberian Federal District 28 billion rubles, in the Omsk region (our calculation) – more than 5 billion rubles [4]. But taking into account the fact that up to 30-40 % of unused arable land is not suitable or inefficient for use, the amount of required basic investments may be reduced to 2-3 billion rubles. The associated costs for the relocation and arrangement of workers and their families are at least 3.5 billion rubles., the purchase of equipment and the creation of necessary buildings and structures - more than 1.5 billion rubles. Therefore, the total investments for solving this social and economic

problem of agriculture for the Omsk region will amount to at least 30 billion rubles. The sources of these investments can be not only state and municipal budgets, but also commercial organizations. Based on the size of the required financial resources from different sources, the main and supporting investments are determined. This is accompanied by balancing the size of the involved land resources and the size of the necessary labor resources, industrial buildings, facilities, and agricultural machinery. At the same time, it is necessary to determine the sources of funding both in general for the problem and at each stage of the work (Table 1).

Table 1. The cost of carrying out cultural and technical work to engage in turnoverunused agricultural land in the Russian Federation*.

Subject	Total area of unused land, thousand hectares	Price, million rubles
Central Federal District	4 711.97	29 994.68
Northwestern Federal District	4 490.44	28 584.45
Southern Federal District	2 475.22	15 756.33
North Caucasian Federal District	209.95	1 336.43
Volga Federal District	6 539.73	41 629.53
Ural Federal District	2 200.21	14 005.69
Siberian Federal District	4 421.12	28 143.22
Far Eastern Federal District	3 305.47	21 041.41
Total for the Russian Federation	28 354.11	180 491.74

* The area of unused land is given according to the data of the Ministry of Agriculture.

The organizational part of the implementation of this problem is quite complex, it affects the interests of many authorities and organizations, therefore it requires special attention. The main person responsible for solving this problem in the subject of the federation is the regional agricultural management body, which acts as the ideologist of this work. In the Omsk region, such a body is the Ministry of Agriculture and Food. It coordinates with the federal authorities the amounts and procedure for financing from the federal and regional budgets. For direct implementation, a certain center for rationalization (improvement) of land use is needed, which should have the authority to develop project documentation, organize the implementation of approved promising proposals and their financing. This center determines the performers on the basis of a competitive distribution of works and has the authority to accept the completed works. Depending on the time of receipt of financial resources (especially from the federal budget), the stages of works are set. Given the complexity and multi-vector nature of the tasks required to solve this problem, the main method of its implementation should be considered the project method. At the same time, the project method should be oriented not according to the functional content, but on the basis of the territorial unity of a certain amount and area of unused land (district, group of districts). This will allow not to spray funds, but to choose the most suitable municipal territories, providing them with a complete comprehensive solution of unused land. Not a complete or comprehensive solution to the problem will lead to low efficiency of the proposed measures and investments. The projects must pass a competitive selection at the level of the regional Ministry of Agriculture. It is necessary to exclude parochial subjective approaches when choosing objects. The first (experimental) developments of such projects will necessarily require serious scientific support.

4. Results discussion

This problem is considered as the most important problem in the system of agricultural land use by a number of authors (Khlystun V. N., Lipsky S. A., Alakoz V. V., Polunin G. A.) [6-8]. They designate and describe it, but the solution mechanisms are proposed mainly economic and land management. A number of foreign scientists present their research on this topic [9-13]. The paper proposes to raise the rank of importance of the issue to the social and economic problem of all agriculture and sustainable development of the territory. This allows to use complex methods for solving it.

5. Conclusion

The transition to the market foundations of the economy gave rise to such a phenomenon as reserve (unused) areas of land resources. The overlap of unsolved problems of land use in the post-reform period and the crisis phenomena in agriculture led to a sharp jump in the size of the area of unused land. This phenomenon has become the most important social and economic problem of the agro-industrial complex and rural areas. To solve it, at least 50 billion rubles are predicted at the level of the subject of the Federation, and the possible return is planned to be no more than 4-5 billion rubles. For entrepreneurs, this will be an economically inefficient investment. But for society and the State, the total social and economic effect is much higher (in the range of 7-8 billion rubles) and it is focused on a significant perspective. Therefore, the approach proposed in the paper allows to solve this problem within the framework of a market economy and help agricultural production in ensuring its sustainable development and overcoming crisis phenomena. At the same time, this approach allows to take into account the new trend of market land use – the reasonable availability of a certain reserve of land. Therefore, we can assume that the purpose of the study, to show ways to solve the problem of land use in market relations, has been achieved.

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