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**FORMATION AND IMPLEMENTATION OF REGIONAL TARGETED AGRO-INDUSTRIAL
COMPLEX DEVELOPMENT PROGRAMS TOWARDS INTEGRATED RURAL DEVELOPMENT**

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Abstract. The paper discusses current issues related to the formation and implementation of regional targeted programs for the development of the agro-industrial complex (AIC), and also assesses their impact on the sustainable development of rural areas of the region. As an example, a regional target program has been developed and economically justified to involve fallow and unused lands in agricultural production turnover. The author's methodology for the formation and implementation of regional target programs for the development of the agro-industrial complex is presented. On the basis of this methodology, a pilot project of the regional target program "Involving Arable Lands Not Used for Their Intended Purpose in the Altai Territory for Sustainable Rural Development for the Period of 2020-2025" has been developed. Based on the strategy for the development of agricultural production in the Altai Territory, as well as in the context of the implementation of the draft regional target program developed by the authors, the forecasted production values of the main agricultural products of the Altai Territory for the period of 2020-2030 are presented. In the forecast calculations, the portion of the planned organic agricultural production is highlighted, the effectiveness of program measures is assessed, some conclusions are drawn on the feasibility of regional targeted programs towards sustainable rural development.

Keywords: target programs; sustainable development; unused arable land; rural areas; efficiency; agribusiness strategy; forecast

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1. Introduction

The Russian Federation has all the necessary resources for the further development of agricultural production, including today's highly efficient production of organic products – these are long-term agricultural traditions, vast areas of agricultural land resources, as well as a relatively low level of intensification and chemicalization of agricultural production in comparison with industrialized countries. So, for example, if the average level of chemicalization in the EU countries, expressed in the indicator “fertilizer application”, is 196 kg of active ingredient per 1 hectare of agricultural land, on average in Russia this indicator does not exceed 43 kg, and in the largest arable land area – the Altai Territory – 4.8 kg per 1 hectare of arable land (Tatarkin, Polycyn, 2015).

Rural territories play a significant role in shaping the economy of the region and the way of life of the population, for example, agriculture accounts for more than 19% of gross regional product against 6-7% in Russia. About 44% of the total national population lives in rural territories of the region. The Altai Territory has huge agricultural potential, ranking first in Russia in terms of arable land (6.5 million hectares), of which more than 75% are fertile chernozems (Kryukov *et al.*, 2018). In terms of gross agricultural output, the region is in the first place among the regions of the Siberian Federal District and is in the top ten among the regions of the Russian Federation. The contribution of the region's agriculture to the solution of the national food security problem is 4% of all-Russian grain production, 3% of sunflower, 15% of flax, 5% of milk, 3% of potato, about 3% of meat and eggs, about 2% of sugar beets and vegetables (Voronkova *et al.*, 2018; Yemelyanov *et al.*, 2018; Tikhomirov *et al.*, 2018).

For completeness of comparative analysis of the level of development of agriculture in Russia, we consider similar indicators of Azerbaijan. The territory of the Azerbaijan Republic is 86.6 thousand square meters. km., which is almost 200 times less than the territory of Russia. Land structure: 12% forest, 1.6% water basin, 52.3% land suitable for agriculture, 34.1% other land. Of the total land area (8.7 million ha), agricultural land is 4.6 million ha. Of these, more than 1.8 million hectares are arable land, 2 million hectares are occupied by summer and winter pastures, part of the agricultural land is occupied by perennial plantations (Agriculture in Azerbaijan, 2020). Thus, despite the significant difference in the total area of the territories of Russia and Azerbaijan, the ratio of the area of land suitable for agriculture to the total area of the territory does not differ much. As a result of the foregoing, it becomes relevant and significant to identify the relationship between the sustainable development of rural areas of the region and the formulation and implementation of regional targeted programs for the development of the agro-industrial complex (AIC).

2. Methods

The theoretical and methodological basis of the research is the works by domestic and foreign scientists on the sustainable development of rural areas, agricultural production in agricultural regions of the country; the academic studies and recommendations of the Russian Academy of Agricultural Sciences, the regulations of the Russian Federation, the decrees of the President and resolutions of the Government of the Russian Federation, regulatory legal acts of the constituent entities of the federation. The methodological basis was a systematic approach, which allowed for comprehensiveness and a targeted view. The following research methods were also used in this study: monographic, analytical, abstract-logical, computational-constructive, economic-statistical, extrapolation.

3. Results

The main goal of the implementation of the regional target development program is to increase production efficiency in certain segments of its target orientation through targeted support of the subsidy recipients, as well as continuous monitoring by authorized regional governing bodies of the targeted and rational use of the provided budgetary resources. In the process of research, as well as on the basis of studying domestic and foreign

experience in implementing targeted development programs, a mechanism was created making it possible to optimally form the regional targeted development programs for the AIC, as well as assess their effectiveness (Figure 1).

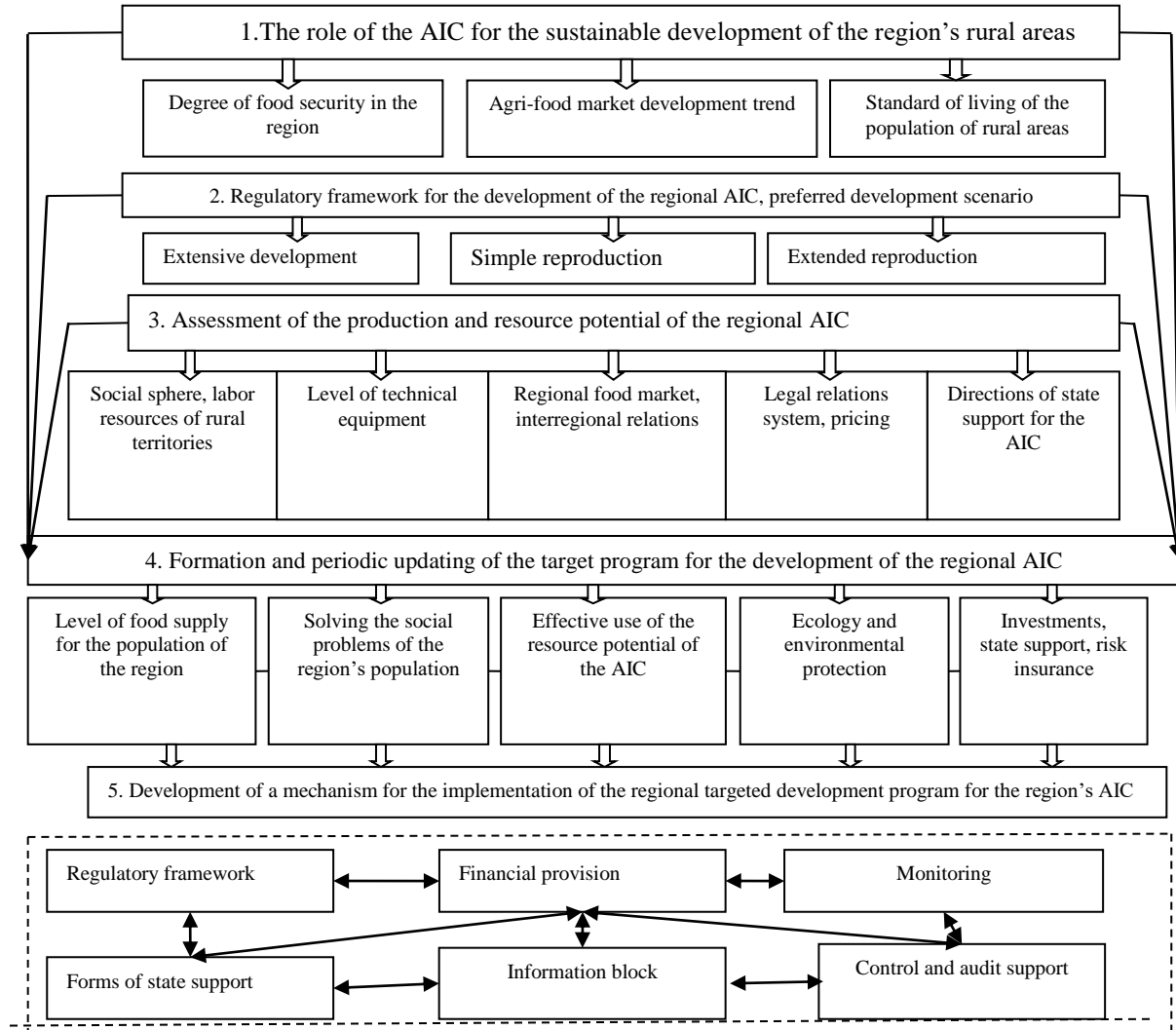


Fig. 1. The mechanism for the formation and implementation of the regional target program for the development of the AIC towards sustainable rural development

Source: the authors

Thus, arable land is the main resource of production in the agricultural production of rural areas. Over the past three decades, a significant amount of productive arable land has been removed from agricultural production, which has negatively affected both the volume of agricultural production and rural employment (Kovalenko, 2012; Miloserdov, 2014; Zhuchenko, 2012). In order to create an enabling environment for the sustainable development of rural territories in agricultural regions, it is necessary to involve unused arable land in the agricultural production process (Lysenko, 2008). Stimulation of agricultural producers, increasing the efficiency of their activities on additional involvement into agricultural production of arable land not used for its intended purpose, is assumed through the mechanism for implementing regional targeted development programs (Polushkina, 2012).

The group of authors has developed a pilot project of the regional target program “Involving Arable Lands Not Used for Their Intended Purpose in the Altai Territory for Sustainable Rural Development for the Period of 2020-2025”. The main provisions of the proposed regional target program are aimed at a more complete and efficient use of arable land by agricultural producers, increasing their efficiency, increasing the production of agricultural products in the Altai Territory, as well as increasing the level of employment and socio-economic well-being of residents of rural territories of the region (Korableva et al., 2018).

Expected results of the implementation of the regional target program “Involving Arable Lands Not Used for Their Intended Purpose in the Altai Territory for Sustainable Rural Development for the Period of 2020-2025”:

- 1) an increase in the share of arable land used for its intended purpose by 2025 to 100% relative to the level of 2020;
- 2) involvement in agricultural production turnover of unused arable land with an area of 217 thousand hectares and fallow land with an area of 336 thousand hectares for the purpose of sustainable development of rural territories of the region;
- 3) formation of an effective mechanism for the implementation of regional targeted programs for the development of agriculture towards sustainable development of rural areas;
- 4) reproduction of soil fertility of arable land, environmental protection;
- 5) rational planning of production uses of arable and fallow land resources involved in the production turnover.

The total land area in the Altai Territory as of January 1, 2019 is 11,534.4 thousand ha, of which 10,596 thousand ha are farmlands. Of the total agricultural land area, arable land covers 6,542.1 thousand ha, fodder land – 3,731.1 thousand ha. According to statistics, the area of unused arable land in 2019 amounted to 217 thousand ha, the area of fallow land – 336 thousand ha (Melgui *et al.*, 2018). Consequently, the reserve fund for increasing the sown area of the region is 553 thousand ha. In order to more efficiently use arable land, it is necessary to develop a set of measures to stimulate agricultural enterprises in the region to engage arable land that they do not use (Podprugin, 2012). The intended use of arable land is an important measure to increase soil fertility, increase the value of land resources, create new jobs, improve the quality of life of the rural population, the social and economic development of rural areas, and is also of great environmental importance (Altukhov, 2018; Alferova, 2015; Klochko et al., 2016). The mechanism of subsidizing part of the costs associated with the involvement of unused arable land in production includes the provision to agricultural producers of compensation for the reimbursement of part of the costs of involving unused arable land in the production turnover at the rate of 3,000 rubles for 1 hectare of arable land introduced into agricultural circulation that has not been used for its intended purpose for more than three years. The amount of compensation is calculated on the basis of the average market price of 60 liters of diesel fuel per 1 hectare of fallow arable land, this amount is minimally necessary for the necessary agricultural activities (Table 1).

Table 1. Performance indicators for the implementation of the draft regional target program for the period of 2020-2025 (forecast values)

No.	Indicators	Year					
		2020	2021	2022	2023	2024	2025
1	Reserve fund of unused arable resources, thousand ha	553	496	424	359	298	249
2	Area of unused and unclaimed arable land allocated as land shares, thousand ha	411	411	250	135	70	-
3	Area of arable land to be involved into agricultural circulation, thousand ha	35	49	68	65	60	50
4	Area of arable land in unsatisfactory agrotechnical condition, thousand ha	790	790	773	764	746	749
5	Total area of arable land used for its intended purpose, thousand hectares	6,317	6,384	6,656	6,521	6,573	6,636

Source: the authors' research

It is necessary to provide for the annual development by agricultural organizations of plans where the planned structure of land use should be presented by each agricultural organization. Program activities also envisage the annual involvement of about 10% of the total area of unused arable land in agricultural production, and the effectiveness of the use of the arable land put into circulation should be evaluated annually based on data provided by land user organizations.

Table 2 presents the estimated financial support of the regional target program “Involving Arable Lands Not Used for Their Intended Purpose in the Altai Territory for Sustainable Rural Development for the Period of 2020-2025”. The amount of funding for program activities is determined on the basis of the distribution of powers between the regional budget, as well as the municipal share of budget financing and extrabudgetary sources (Table 2).

Table 2. Program measures for the period of 2020-2025 (resources and terms of implementation of each event), million rubles

Measure	Year																	
	2020			2021			2022			2023			2024			2025		
	total	regional budget	local budget and extrabudgetary sources	total	regional budget	local budget and extrabudgetary sources	total	regional budget	local budget and extrabudgetary sources	total	regional budget	local budget and extrabudgetary sources	total	regional budget	local budget and extrabudgetary sources	total	regional budget	local budget and extrabudgetary sources
Task 1. Assessment of unused arable resources (allocated as land shares)																		
Identification of unused arable land allocated as land shares				161		161	115		115	65		65	60		60			
Subsidizing agricultural organizations part of the cost on involving unused arable land in production	71	26	45	362	136	228	389	144	245	355	130	224	335	124	210	175	102	173
Task 2. Preservation of the natural environment and rational use of arable land																		
Land use structure optimization	At the expense of funds provided for the operation of administrative bodies of state and municipal authorities																	
Intensification of state control over the use of arable land	At the expense of funds provided for the operation of administrative bodies of state and municipal authorities																	
Total according to the program	71	26	45	523	134	389	504	144	360	420	130	286	395	124	270	175	102	173

Source: the authors' research

The effectiveness of the implementation of the proposed project of the regional target program will be assessed by identifying the completeness and quality of the implemented program activities, the degree of achievement of the goals and objectives. The program activities are aimed at the sustainable development of rural areas of the country's agrarian regions by increasing the efficiency of agricultural production and creating the preconditions for ensuring food security in both the region under consideration and the Russian Federation as a whole by increasing the volume of agricultural production (Danilov-Danilian, 2003; Kolesova, 2015; Prokhorova, et al., 2016; Voronkova et al., 2020; Ziyadin, 2012).

The implementation of the draft regional target program should be based on legal, organizational, financial, informational and methodological support and support from the authorized bodies of regional power and management (Snitch, 2011). Program activities should be open in nature and implemented through wide information accessibility for agricultural producers, in particular, through the official website of the regional government and websites of executive authorities in municipalities. The effectiveness of the implementation of the project of the regional target program is assessed in accordance with the main objectives of the program and contributes to:

- 1) identification of deviations of the current indicators of the implementation of program activities from the planned and approved ones;
- 2) identification of internal and external causes of deviations from the plan and their consideration in the formation of program activities for the next planning period;
- 3) adoption of measures aimed at the integrated implementation of indicators, as well as the current and final results of the activities of the regional target program;
- 4) taking measures to improve the quality of planning.

The following criteria can be noted for evaluating the effectiveness of the implementation of the regional target program:

- 1) the degree of implementation of planned program activities;
- 2) the level of achievement of the intended results;
- 3) the degree of compliance of the results obtained with the actual costs incurred for the implementation of program activities;
- 4) the compliance of operational indicators with the level of certain indicators for the implementation of program activities;
- 5) the completeness of the implementation of program activities.

Evaluation of the effectiveness degree in the implementation of the activities of the regional target program is based on the established target indicators presented in Table 1.

To assess the effectiveness of the production-related use of arable land and fallow land involved in agricultural turnover, the executive authorities of the municipalities of the region need to quickly monitor the condition of land resources put into turnover with the financial support of the regional target program in order to make decisions on suspension of subsidies for any agricultural organization in case if negative factors are found in land use, expressed in a decrease in soil fertility, deterioration in the quality state of arable land, reduced productivity, and in the case of the absence of a visible positive results in achieving the goals of sustainable development of rural areas.

Discussion

Based on the strategy for the development of agriculture in the Altai Territory until 2025, as well as the regional target program “Involving Arable Lands Not Used for Their Intended Purpose in the Altai Territory for Sustainable Rural Development for the Period of 2020-2025” developed in the research process, the forecast values of agricultural production in the Altai Territory for the period until 2025 have been calculated based on the extrapolation method. The forecast is based on an analysis of agricultural production volumes in the Altai Territory for the period of 2000-2019, then the forecast was formed by extrapolating the current trend of a gradual increase in production volumes, also taking into account the annual involvement of additional arable land into agricultural production turnover, and, accordingly, agricultural output from the given area (Table 3).

Table 3. Predicted values of agricultural production in the Altai Territory, taking into account the implementation of program activities for the period of 2020-2025, thousand tons

Indicators	Year					
	2020	2021	2022	2023	2024	2025
Cereal crops	4,100	4,150	4,300	4,500	4,600	4,800
including produced on arable land, additionally involved in turnover	67	95	170	240	319	380
Flax	7.9	8.5	9.4	9.5	9.7	10.1
including produced on arable land, additionally involved in turnover	0.3	0.5	0.7	0.8	0.9	1.0
Sugar beet	505	640	695	720	765	800
including produced on arable land, additionally involved in turnover	7	15	24	39	46	60
Sunflower	303	320	335	354	370	395
including produced on arable land, additionally involved in turnover	3	5	9	15	28	36
Potatoes	857	869	876	880	886	900
including produced on arable land, additionally involved in turnover	7	12	24	46	72	89

Source: the authors' research

In the strategically foreseeable period (2020-2025), it is planned to increase the share of agricultural products of the Altai Territory produced on arable land, additionally involved in turnover in the cereals group up to 7.9%, flax up to 10%, sugar beet up to 7.5%, sunflower up to 9.1%, potatoes up to 9.9% of the total agricultural production in the region.

As a result, an increase in the cost of gross agricultural output in comparable prices of 2020 by 2025 is forecasted to reach 182 billion rubles, or 155% compared to 2015; the profitability level of agricultural organizations is planned to be increased up to 20%, in comparison with the estimated indicator of 2015 – 8.7% (Table 4).

Table 4. Target indicators for the development of agriculture in the Altai Territory, taking into account the implementation of program activities for the period of 2020-2025

Indicators	Year					
	2020	2021	2022	2023	2024	2025
Value of gross agricultural output, billion rubles, at comparable prices of 2020	121	129	136	144	152	161
Production index, as % of 2020	100.0	106.6	112.4	119.0	125.6	133.1
Profitability of agricultural organizations, %	9.9	12.5	13.1	14.2	15.5	16.8

Source: the authors' research

Conclusions

The study identified that the rural territories of the country's agrarian regions possess the necessary climatic conditions, labor, resource and land potential towards sustainable development goals. An in-depth analysis and assessment of the possibility of applying the world experience of sustainable rural development in conjunction with the existing system of Russian agricultural land use are serious prerequisites for strategic development and strengthening the position of the AIC in the national economy.

The mechanism of formulation and implementation of the regional target program for the development of AIC towards sustainable development of rural territories, justified and presented in the study, made it possible to develop a draft regional target program "Involving Arable Lands Not Used for Their Intended Purpose in the Altai Territory for Sustainable Rural Development for the Period of 2020-2025". The main activities of the program are aimed at a more complete and efficient use of arable land by agricultural organizations, increasing production efficiency in agriculture, as well as increasing the volume of agricultural production in the Altai Territory. So, according to program measures until 2025, 217 thousand hectares of arable land and 336 thousand hectares of fallow land not used for their intended purpose and not claimed by the owners of land shares will be involved in agricultural production turnover.

According to the results of the study, the maximum amount of subsidiary support until 2025 was identified on the basis of a reasonable standard for arable land introduced into agricultural production, not used for its intended purpose, in the amount of 3,000 rubles per hectare for doing agricultural works. The developed methodology for operational monitoring of the effectiveness of the use of arable land introduced into turnover will allow the municipal authorities of the region to quickly monitor the state of arable land and fallow land in order to decide on the suspension of subsidies for any agricultural organization when identifying some factors of inefficient land use.

Based on the strategy for the development of agricultural production in the Altai Territory, as well as taking into account the developed draft regional target program "Involving Arable Lands Not Used for Their Intended Purpose in the Altai Territory for Sustainable Rural Development for the Period of 2020-2025", forecast values of agricultural production of the region for 2020-2025 have been calculated. Target indicators for the development of agriculture in the Altai Territory have been substantiated, in accordance with the implementation of the program-related activities.

The prevailing natural and climatic conditions of rural territories of the country's agrarian regions, as well as the concentration of land, material, financial and labor resources towards sustainable development, not only open up some additional opportunities for agricultural production but also will reduce the dependence on products imports, and will enhance the level of quality and environmental safety of products, the development of diversification of agricultural production and the socio-economic development of rural areas of the country's agricultural regions.

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