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FORMATION OF THE COMPETITIVE POTENTIAL OF THE AGRICULTURAL TERRITORIES

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Abstract. The purpose of the study is to develop a mechanism for the formation of the competitive potential of the agricultural territories of Kazakhstan as the basis for ensuring the dynamic development of agricultural business in Kazakhstan. The research methodology is based on strategic alternative modeling for agricultural territories competitiveness management with the help of fuzzy cognitive logic. The study used a cognitive approach to decision making in the management of poorly structured systems proposed by V. Silov and actively developed in the works of modern scientists. Fifteen competent experts were invited to select the concepts and build a fuzzy cognitive map of the formation of the competitive potential of the agricultural territories of Kazakhstan. To carry out calculations and justify the content of the strategy, the authors used the software product "Intelligent generation of the best alternatives" ("IGLA"). The result of the study is the developed strategy for the management of agricultural territories competitiveness in Kazakhstan with a set of strategic goals and the best option for managerial impact, ensuring the formation of agricultural export potential of the region. The proposed version of the content of the strategy for managing the competitiveness of the agricultural territories of Kazakhstan can be used either as a system or as its separate elements in managing the development of agricultural business in the country and in developing strategic planning programs for the agro-industrial complex of the region. The novelty of the study in theoretical terms is justified by the approach to the formation of the country's agricultural export potential through ensuring the competitiveness of its agricultural territories. In methodological terms, the novelty of the study is expressed by the use of cognitive modeling technologies to develop a strategy for managing the competitiveness of Kazakhstan's agricultural territories, the implementation of which will allow achieving sustainable dynamics of agricultural production and increase the efficiency of the agricultural economy.

Keywords: agro-industrial complex; Kazakhstan; agricultural territories; competitive potential; cognitive modeling; fuzzy cognitive maps; static and dynamic analysis; strategic alternatives; competitiveness management strategy

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1. Introduction

Food independence issues remain relevant to any country. The current events in international relations make this issue more urgent and dictate the need to develop and implement a food security policy in Kazakhstan, taking into account the prevailing realities and potential of agricultural territories. It is the competitive potential of these territories that determines the ability of the state to provide itself with food resources. In Kazakhstan, more than 80% of the territories are agricultural. At the same time, a significant part of them is in a crisis state. The relevance of the problems of agricultural territory development is also confirmed by the growing number of scientific studies on this topic, namely the works of V. Bautin et al. (2004), L. Bondarenko (2015), I. Hitskov (2016), Guiomar et al. (2018). Studies on increasing the efficiency of using the resources involved in the agricultural production process are the main topic of research done by N. Nechaev (2016), M. Skalnoy (2018), Guth and Smędzik-Ambroży et al. (2019). The works of O. Ikonnikova (2014), A. Tarasova et al. (2016), N. Logantsova (2013), M. D'Amico et al. (2013), E. Andersen (2017), etc. are dedicated to the development of a comprehensive typologization of rural territories.

However, despite a significant amount of research on the development of agricultural territories, many theoretical and methodological issues related to the system for managing their competitive potential remain not fully understood and several points are debatable. The development of a justified support model and measures for the agrarian territories of a particular region, in particular, Kazakhstan, aimed at the formation and strengthening of their competitive potential, remains one of the most important issues.

The subject area of the research is the agro-industrial complex (AIC) of Kazakhstan. The subject of the study is the mechanism for the formation of the competitive potential of agricultural territories using cognitive modeling.
The working hypothesis of the study is as follows. The competitiveness management of agrarian territories as a system includes the establishment of target priorities and a set of managerial influences in a specific time and content ratio, which ensures the dynamics of the development of agribusiness in the country and the formation of its agro-export potential.

2. Literature review: theoretical aspects of the competitiveness of agricultural territories

The possibility of applying the concept of competitiveness to a particular territory is currently disputed by many researchers. It is noted that in a market economy, the territory does not act as a subject of market relations and transfers the functions of the manufacturer to individual enterprises on a competitive basis. Therefore, having raw materials and investments, the territory cannot be subject to competition with these items of competition in the demand market. We find this point of view debatable. We believe that the competition of territories, including agricultural ones, is a natural competition for a profitable market for raw materials and sales of products, for mastering profitable logistics systems, for attracting human resources, for government subsidies in the highest amount, for effective communication channels, etc. For instance, South America as a regional territory has been linked for long with the export and production of a varied range of agricultural commodities, whether it is beef from Argentina and Uruguay, bananas from Ecuador or coffee from Colombia and Brazil. Trade data show that the region is indeed very competitive and important net exporter of agricultural commodities to the world, accounting for an estimated 16% of global food and agriculture exports between 2012 and 2015 (Duff and Padilla, 2015). According to the USDA, 31% of the 2017 world's oilseed production is harvested in Brazil and Argentina. (USDA, 2017). Behind the aggregate statistics for production and exports is an impressive list of commodities for which South America is the leading competitor and supplier to the world market.

Modern Kazakhstan is characterized by a high level of standardization not only of the economy but also of the entire sphere of public relations, which determines a significant dependence of the territory's competitiveness on the activities of state authorities. This problem is of particular relevance for agricultural territories, given that

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agricultural production in Kazakhstan is the basic industry and the added value of the agricultural sector to the country's gross domestic product (GDP) according to the World Bank equals 4.2% (World Bank, 2019a).

The subjects of competition that are most susceptible to the influence of the authorities can include investments, labor and transport infrastructure. However, the competitive potential of a populated area is a multifactorial synthetic concept; therefore, the management of a particular competitiveness factor, as a rule, involves the impact on the totality of several interrelated factors.

Thus, a prerequisite for effective management of the competitiveness of the territory is a quantitative and qualitative assessment of the totality of its characteristics. Therefore, the determination of the competitive advantages of the territory involves the following sequence of actions:

- identification and analysis of the characteristics of the territory;
- detection of their change trends;
- assessment of the possible and optimal level of control action;
- determination of time and resource costs necessary to change these characteristics;
- comparison of the obtained results with the results for other territories similar to each other from the sectoral or geographical point of view.

In the sequence of managerial actions aimed at improving the competitiveness of the territory, the first place is occupied by the identification and analysis of its characteristics that are significant for the control action goal.
The variety of characteristics that affect the competitiveness of the territory requires careful classification. One of the most successful attempts at systematization was proposed by M. Khasanov and S. Yuldoshev (2001). The classification was developed by the authors to systematize factors affecting the investment attractiveness of the territory. However, as shown above, competitiveness is a more general concept compared to investment attractiveness, thus, this classification is also applicable to the factors determining the competitiveness of a territory. The factors are classified as follows:

- by the source of occurrence: external (global, national) and internal (regional);
- by dependence on the activities of people: objective and subjective;
- by components of investment attractiveness: investment potential and investment risk;
- by the action focus area: favorable and unfavorable;
- by the duration of exposure: long-term, medium-term, short-term;
- by the field of formation: economic, financial, sociocultural, legal, innovative, environmental;
- by predictability: predictable (expected) and unpredictable (unexpected);
- by the ability to be regulated: manageable (possible to regulate) and unmanageable (impossible to regulate);
- by way of expression: quantitative and qualitative;
- by importance: essential and non-essential;
- by the degree of intensity of changes: rapidly changing, moderately changing, slowly changing, almost unchanging.

To date, the classification of the characteristics of the territory proposed by A.G. Voronin (2007) has gained relatively wide popularity. The author identifies five main groups of characteristics:
- natural and climatic, as well as geographical;
- infrastructure and transport connections;
- existing structure of industry and business;
- demographic resource and professional level of the working-age population;
- administrative resource.

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A combination of the three dichotomous classifications can be an alternative to the proposed model.

First, it is necessary to distinguish between natural and anthropogenic characteristics, which allows one to assess the initial potential of the territory and the level of its use. It must be borne in mind that natural characteristics can partially or completely change under the influence of anthropogenic impact; for example, a change in biocenosis as a result of deforestation.

Depending on the applied research objective, some parameters can be omitted, others, on the contrary, are detailed and refined. Therefore, second, it is necessary to separate the general and specific (or industry) characteristics, which allows one to limit the scope of the analyzed indicators depending on the intended focus are of the territory development. In this case, the determination and analysis of the characteristics must be carried out in two stages. At the first stage, more attention is given to the general characteristics, the analysis of which serves as a basis for the selection of the priority focus area. At the second stage, only characteristics related to a particular industry are considered.

The overwhelming majority of the characteristics proposed to illustrate the classification by origin belongs to the general characteristics group.

Specific (industry) characteristics of the agricultural territory are, first of all, the following:

- the landscape (with an assessment of suitability for a particular type of agriculture, such as crop production, cattle breeding in the context of cattle and small cattle);
- the minerals (significant for agriculture);
- the climatic parameters (duration of the frost-free period, the average temperature for the frost-free period, average annual rainfall, etc.);
- the soil composition and fertility;
- the hydrological regime and water resources (hydrographic network, excess/lack of moisture, seasonal fluctuations, the availability of sources to replenish the lack of moisture and the distance to them);
- the vegetation;
- the wildlife;
- the level of urbanization;
- the historical agricultural specialization, determined by climatic factors, as well as the ethnic and religious composition of the population;
- the proportion of the population employed in agriculture;
- the presence and level of development of agriculture and processing industry;
- the ratio of average productivity and processing capacities of the corresponding specialization (matching the market to the country's raw materials and processing capacities);
- the level of development of the social sphere in rural areas (the presence and accessibility of primary and secondary education institutions, primary health care, in the absence of rural areas, their remoteness and time spent to reach them are estimated);
- the condition of the road network;
- the presence of environmentally hazardous enterprises in this and adjacent territories and the level of their economic efficiency, as well as other sources of pollution that reduce the quality of agricultural products.

It is important to emphasize that all the lists of characteristics proposed above are not exhaustive. Each of them can be supplemented or changed depending on the objectives of the analysis. Indicators are analyzed in dynamics, except only those that do not change over time or change extremely slowly (for example, location, landscape, historical specialization, etc.).

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Third, it is extremely important to differentiate unchanged and variable characteristics, which allows one to determine the necessary and possible amount of managerial impact depending on the goal and the chosen focus area of the territory development. This classification is the most significant one for assessing the possible effectiveness of territory development programs and investment projects. However, it is also the most difficult one for practical implementation.

The vast majority of characteristics are mutable or potentially mutable. In modern conditions, the variability of one or another parameter is almost always determined by the availability of appropriate resources. Two attempts to control climatic conditions can serve as an example of this. During the Soviet period, powerful greenhouse farms were established in many cities in the north of Russia that performed well in a planned economy but proved to be uncompetitive in market conditions. On the contrary, in Israel, where a significant part of the territory is located in an area unsuitable for agriculture, a highly efficient agricultural production has been created, the products of which are in demand not only in the domestic market but also in many other countries.

Thus, one should consider not only the feasibility but also the effectiveness of the proposed changes. The most expensive changes include the development of infrastructure and the creation of artificial climatic conditions. Finally, an average level of costs may be required to enrich the soil, provide tax benefits and preferences (in this case, the costs are related to the shortfall in budget revenues of the corresponding levels), develop a development strategy for the territory, increase the staffing potential of the territory, ensure the availability of health and education services, housing and quality utilities.

By the duration of obtaining the results of exposure, the following groups can be distinguished. In the shortest possible time (3-6 months), one can implement the changes that require only the adoption of relevant regulations (legislative guarantees of non-interference of the administration in business and the adoption of decisions on the provision of tax and other benefits and preferences). A longer period is needed for the management of changes that require not only normative consolidation but also the formation of sustainable practice for implementing the introduced norms (clarity and transparency of starting and running a business, development of financial instruments). Finally, the longest time will be required to increase the staffing potential, artificially change climatic conditions and develop the infrastructure of the territory (Zinchuk et al., 2018).

The above resource requirement is evaluative and in each case requires clarification depending on the territory and/or set of characteristics, for which it is advisable to use expert assessment methods. The payback period of the proposed changes is determined based on calculations.

Given the previously noted high level of standardization of modern Kazakh society, special attention should be paid to determining the level of change management. However, the changes are complex and dynamic, determined by a large number of interrelated factors. Therefore, the methodology for managing the competitiveness of agrarian territories as a poorly structured system should be based on a combination of formalized research methods and subjective models using expert judgment, common sense logic, intuition and heuristics. Such opportunities are provided by the cognitive approach to modeling the mechanism of formation of the competitive potential of agricultural territories.

3. Materials and methods: the methodology for agricultural territories competitiveness management using cognitive technologies

The issues of managing poorly structured systems using cognitive technologies are discussed in the works of such researchers as J. Casti (1982), R. Axelrod (1976), R. Atkin and J. Casti (1977), F. Roberts (1978), B. Kosko (1986), V. B. Silov (1995), V.I. Maximov (2001), Z. Avdeeva, et al. (2007) and others.

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The methodology of cognitive modeling involves the construction of a fuzzy cognitive map (FCM), its static and dynamic analysis, the development of many alternatives that allow one to bring the state of the system to a given target value (level).

The algorithm and content of the stages of cognitive modeling of the processes of formation of the competitive potential of the agrarian territories of Kazakhstan were determined based on the developments of V. Silov (2005), V.I. Gorelova et al. (2012), D. Erokhina et al. (2010), N.K. Krioni et al. (2016), V.V. Kruglova (2002), A.A. Kulinich (2010), A.G. Podvesovsky et al. (2009), A.E. Kolodenkova (2017).

At the first stage of the study, we assessed the competitive potential of the AIC of Kazakhstan to determine the composition and content of concepts, in terms of which the competitiveness management system of the agricultural territories of the region is described. The low level of competitive potential of the agricultural territories of Kazakhstan is evidenced by the insufficient and unstable dynamics of the country's agricultural production (Figure 1) and the low level of the country's share in global food exports (Table 1). According to World Bank (2019b), the added value of agricultural output per employee, which is a measure of the efficiency of agricultural production, in Kazakhstan in 2018 amounted to $6,912.68 (in 2010 prices). France surpassed Kazakhstan in this indicator by 9.09 times, the USA – by 11.44 times, Germany – by 5.38 times and Russia – by 2.29 times.

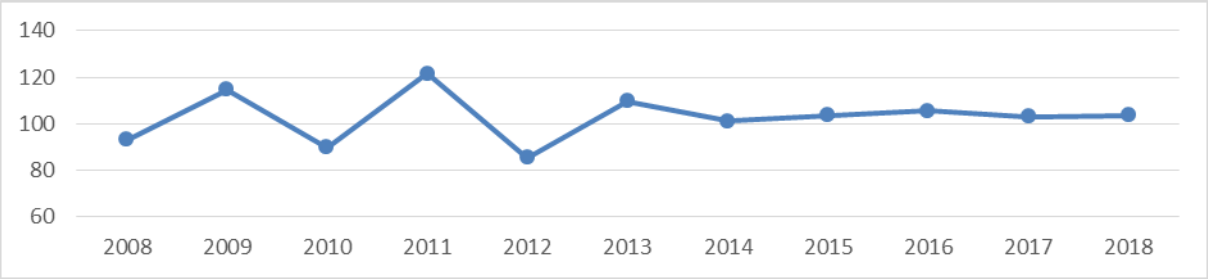

Fig. 1. Index of physical volume of gross agricultural products (services) of Kazakhstan, in % to the previous year

Table 1. Food exports, billion $

Indicator	2012	2013	2014	2015	2016	2017
Global export	1,433.1	1,512.6	1,548.6	1,384.9	1,403.0	1,445.1
Export from Kazakhstan	2.94	2.76	2.62	2.14	2.2	2.45
Kazakhstan's share in global export, %	0.2	0.18	0.17	0.15	0.16	0.17

Source: ITC: http://www.trademap.org.

Experts were invited to determine the composition and content of the FCM concepts for the formation of the competitive potential of the agricultural territories of Kazakhstan.

The processing of expert data, taking into account analytical materials on assessing the competitiveness of the agricultural territories of the region, made it possible to substantiate seventeen concepts divided into four groups (Table 2). Generating competitiveness factors were defined as controlled concepts. Based on the results of this

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stage, using the software product called "IGLA Decision Support System" (Podvesovsky et al., 2007), we obtained a cognitive matrix containing estimates of the intensity of influences.

A clear presentation of it was an FCM of the formation of the competitive potential of the agrarian territories of Kazakhstan (Figure 2). Kazakhstan, having significant land and labor resources for most types of food, does not provide the level of food consumption recommended by medical standards (Table 3).

The next stage of the study was a static analysis of the FCM, during which we calculated the main system indicators (Table 4). For this calculation, we used the mathematical apparatus presented in the works of V. Borisov et al. (2007), D.V. Erokhin et al. (2010), D.I. Kopeliovich et al. (2018).

Table 2. FCM Concepts of the formation of the agricultural territories competitive potential

Item No.	Concept name	Concept type	Initial level	Target level
Agricultural territory competitiveness indicators				
1	Agricultural production index	Target	Very low	Very high
2	Gross added value per person employed in agriculture	Target	Very low	High
3	Share in global food export	Target	Very low	High
Basic competitiveness factors of agricultural territories				
4	Milk production	Unmanageable	Low	-
5	Meat production	Unmanageable	Low	-
6	Gross harvest of staple crops	Unmanageable	Low	-
7	Gross agricultural output at comparable prices	Unmanageable	Low	-
Determining competitiveness factors of agricultural territories				
8	Yield capacity of staple crops	Unmanageable	Low	-
9	Productivity of cattle and poultry	Unmanageable	Low	-
10	Labor productivity index in agriculture	Unmanageable	Very low	-
11	Quality of agricultural products	Unmanageable	Very low	-
Generating competitiveness factors of agricultural territories				
12	Differentiation of rural and urban population	Manageable	Very high	-
13	Quality of life of the rural population	Manageable	Very low	-
14	Environmentalization of agricultural production	Manageable	Low	-
15	Scientific potential of the agricultural sector	Manageable	Very low	-
16	Technological potential of the agricultural sector	Manageable	Very low	-
External factor				
17	Natural and climatic conditions of agricultural production	Unmanageable, external	Very high	-

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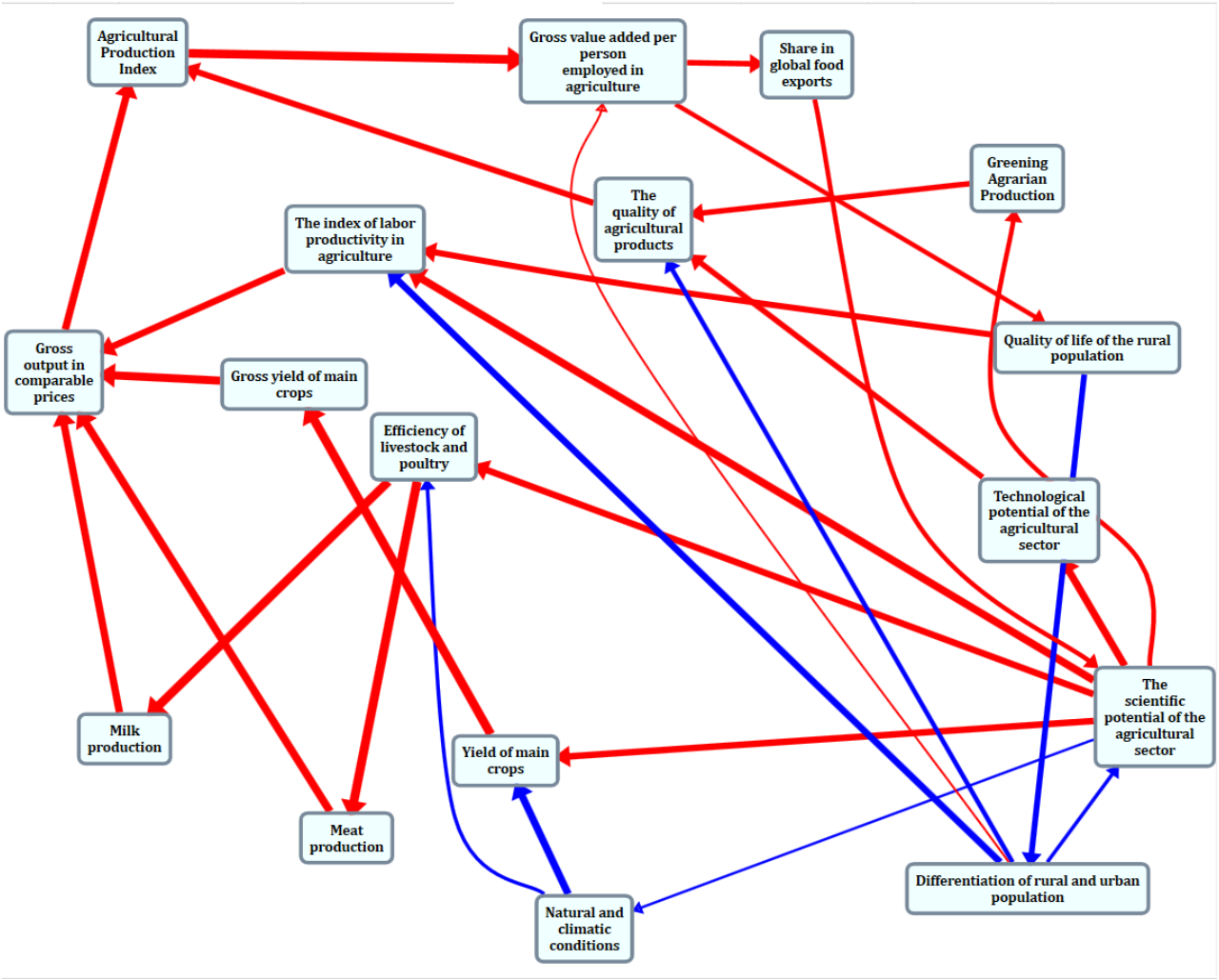

Fig. 2. FCM of the formation of the competitive potential of the agricultural territories of Kazakhstan

The obtained data allow us to verify the cognitive model as adequate to the real situation, as the consonance indicators that determine the quality of the logical sequence and the correspondence to experience are quite high (up to 0.7). It should be noted that the "scientific potential of the agrarian sector" concept affects the system of forming the competitive potential of agricultural territories of Kazakhstan to the greatest degree and the high level of the "differentiation of rural and urban population" concept limits the ability to increase competitiveness.

These concepts as manageable ones can affect the efficiency of the system and move it in a positive direction. The proposed system to a greater extent will contribute to increasing such target indicators as the "agricultural production index" and "gross added value per person employed in agriculture". The strength of the system's influence on the "share in global food export" concept is less pronounced, which is probably due to the difficulty of increasing this parameter, given the internal and external conditions of AIC functioning in Kazakhstan.

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Table 3. Level of satisfaction of the demand for food in Kazakhstan (kg per person per year)

Types of food	1990	1995	2000	2005	2010	2015	2017	Rational norm*	The level of achievement of the rational norm in 2017
Potatoes	86	70	65.7	47	47.5	48.5	48.6	100	48.6
Grain products	148	185	105.3	114	124.2	129.8	138.5	109	127.1
Sugar	38	18.5	21	16.4	38.1	41.9	46.3	33	140.3
Meat and meat products	73	52	44.4	40	65.9	73.6	77.9	78.4	99.3
Eggs (pcs)	225	97	102	108	150	164	193.3	265	72.9
Oil	11.2	7.6	8.9	9.7	18.8	19.3	19.2	12	160.0
Vegetables	76	56	85.5	71	87.6	90.2	94.1	149	63.2
Fruit and berries	23	11	14.7	36	58.5	64.4	74.9	132	56.7
Milk and dairy products	311	229	234.6	189	227.6	233.6	261.3	301	86.8

Source: Ministry of National Economy of the Republic of Kazakhstan. Committee on Statistics. Statistics on agriculture, forestry, hunting and fisheries http://adilet.zan.kz/rus/docs/V1600014674

Order of the Minister of National Economy of the Republic of Kazakhstan dated December 9, 2016 No. 503 registered in the Ministry of Justice of the Republic of Kazakhstan on January 13, 2017 No. 14674 "On the approval of scientifically based physiological norms of food consumption" http://adilet.zan.kz/rus/docs/V1600014674

*Order of the Minister of National Economy of the Republic of Kazakhstan dated December 9, 2016 No. 503 registered in the Ministry of Justice of the Republic of Kazakhstan on January 13, 2017 No. 14674 "On the approval of scientifically based physiological norms of food consumption" http://adilet.zan.kz/rus/docs/V1600014674

The dynamic analysis of the FCM in this study represents a stage, during which strategic alternatives are developed for the formation of the competitive potential of agricultural territories and the choice of a variant of strategic actions leading the system to a given target state is made. The methodological basis and the mathematical apparatus of impulse processes for predicting the behavior of a system under various variants of the influence of controlled concepts are described in the works of A. Podvesovsky et al. (2009), R.A Isaev and A.G. Podvesovskii (2017). The model time is discrete and is represented by a dimensionless scale of values from 0 to N. It is possible to allow some correspondence between the scales of the model and physical time. The value of N is determined either by the achievement of a given moment of discrete time or by the achievement of some stable situation.

During the dynamic analysis, 242 strategic alternatives for the formation of the competitive potential of the agricultural territories of Kazakhstan were generated, of which 18 were not dominated. A visual analysis of these alternatives according to the criteria of the level and sustainability of the achievement of the target concepts, the magnitude of the power of control actions made it possible to unambiguously identify Alternative 146 as the best of them.

4. Results: the mechanism for the formation of competitive potential of agricultural territories of Kazakhstan

The result of the study was the selected and justified strategic alternative to the formation of the competitive potential of the agrarian territories of Kazakhstan, described in terms of the methodology of cognitive modeling (below in Table 5).

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Table 4. FCM system indicators of the formation of the competitive potential of the agricultural territories of Kazakhstan

No.	Concepts	The consonance of the concept's influence on the system	The consonance of the influence of the system on the concept	The dissonance of the concept's influence on the system	The dissonance of the influence of the system on the concept	The influence of the concept on the system	The influence of the system on the concept
1	Agricultural production index	0.9057	0.9665	0.0943	0.0335	0.1817	0.3105
2	Gross added value per person employed in agriculture	0.8734	0.7945	0.1266	0.2055	0.1611	0.3087
3	Share in global food export	0.9718	0.8268	0.0282	0.1732	0.1940	0.1988
4	Milk production	0.9156	0.9079	0.0844	0.0921	0.1517	0.1199
5	Meat production	0.9156	0.9079	0.0844	0.0921	0.1626	0.1199
6	Gross harvest of staple crops	0.9156	0.9082	0.0844	0.0918	0.1734	0.1022
7	Gross agricultural output at comparable prices	0.9106	0.9467	0.0894	0.0533	0.1641	0.2961
8	Yield capacity of staple crops	0.9207	0.9030	0.0793	0.0970	0.1941	0.0653
9	Productivity of cattle and poultry	0.9259	0.9027	0.0741	0.0973	0.2321	0.0859
10	Labor productivity index in agriculture	0.9156	0.9121	0.0844	0.0879	0.1409	0.1522
11	Quality of agricultural products	0.9106	0.9262	0.0894	0.0738	0.1406	0.1196
12	Differentiation of rural and urban population	0.6277	0.8591	0.3723	0.1409	-0.2329	-0.1184
13	Quality of life of the rural population	0.7276	0.8268	0.2724	0.1732	0.1388	0.1626
14	Environmentalization of agricultural production	0.9158	0.8979	0.0842	0.1021	0.1079	0.0718
15	Scientific potential of the agricultural sector	0.9666	0.8927	0.0334	0.1073	0.3766	0.1050
16	Technological potential of the agricultural sector	0.9158	0.8979	0.0842	0.1021	0.1079	0.1117
17	Natural and climatic conditions of agricultural production	0.9403	0.8979	0.0597	0.1021	-0.2227	-0.0399

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Table 5. The content of the best strategic alternative (Alternative 146) of the formation of the competitive potential of the agricultural territories of Kazakhstan

Name of the concept	Description of the dynamics of the concept
Target concepts	
Agricultural production index	In the first two steps, the concept does not change and remains at a "very low" level. From step 3, a sharp increase is achieved to a value of "very high" (by 6 levels), which corresponds to the target value of the concept.
Gross added value per person employed in agriculture	In the first three steps, the concept has negative dynamics and remains at a "very low" level. From steps 3 to 7, a sharp increase to the "high" value (by 5 levels) is ensured, which corresponds to the target value of the concept.
Share in global food export	In the first four steps, the concept is reduced to "very low". From step 4 to step 8, we expect a sharp increase in the concept by 5 levels and achievement of the established target "high" value.
Manageable concepts	
Differentiation of rural and urban population	In the first two steps, the value needs to be reduced by 6 levels and ensure a stable "very low" concept value in subsequent steps.
Quality of life of the rural population	From step 1, the concept needs to be increased by 5 levels to a "high" value, from step 6, increased by another 1 level and remain stable at this value.
Environmentalization of agricultural production	For the first 3 steps, the concept should be increased by 4 levels, from step 4, the stability of the concept value needs to be ensured at a "very high" level.
Scientific potential of the agricultural sector	For the first 6 steps, the concept by 3 levels needs to be increased to the "average" value. From steps 6 to step 9, it needs to be brought to the "very high" value (raise another 3 levels) and remain stable.
Technological potential of the agricultural sector	At the first 3 steps, a "very high" value needs to be achieved and its stability needs to be ensured at this level.

To implement this strategy, taking into account its content, we identified the following strategic initiatives that ensure its implementation:

1. Formation of a competitive scientific and technological base for agricultural production.

It is impossible to increase the competitiveness of agricultural territories without large-scale modernization of production, as well as the introduction of advanced technologies and modern information support. The scientific and technological base of the AIC, focused on the use of technologies of spot agriculture, organic and soil-saving agrarian production, accelerated selection and seed production, deep processing of agricultural raw materials, biotechnologies, etc. is capable of creating the basis for high-tech and competitive agricultural production as a system-forming complex of agricultural territories. In the context of the implementation of the strategic focus on the formation of a competitive scientific and technological base, it is necessary to solve the problem of the connection between scientific research and agricultural production. Transfer of research results requires a developed organizational mechanism with appropriate structures in the form of science cities, technology parks, clusters, scientific and technological platforms.

2. Development of academic and professional human resources of the agricultural sector.

The solution to this problem is possible through the creation of an effective scientific and educational complex of the industry, which ensures the introduction of modern scientific achievements in agricultural production as the most important condition for increasing the competitiveness of agricultural territories. The main focus areas of improving the system of agricultural education should be the following: the formation of a multi-level innovative educational environment in the agricultural sector, the development of a mechanism for the interaction of

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educational structures and business, the creation of modern research areas and schools, the implementation of a system of measures for the development of new forms of combining agricultural science and education.

3. The formation of social conditions for increasing the competitiveness of agricultural territories.

This strategic initiative is one of the most difficult in terms of its implementation, as it affects changes in the public assessment of the place and role of agriculture in the life of the nation. Therefore, one should start by building the economic foundations of such changes. First of all, it is the creation of material living conditions in rural areas under social standards, raising the level of remuneration following the general economy, the implementation of infrastructure projects following current program documents and in full. In the long term, the strategic initiative for the social development of agricultural territories should be focused on the priority development of agriculture as the root system of human society, which forms powerful incentives for general progress in the national economy, which requires a change in public consciousness in relation to agricultural labor and an increase in its attractiveness.

4. Development of an economic mechanism for managing the competitiveness of agricultural territories.

As part of this initiative, it is necessary to overcome the high differentiation of agricultural producers in terms of profitability and the ability to carry out innovative development. A level of profitability and profit of agriculture sufficient for expanded reproduction, investment, the scientific and technical progress should be ensured.

5. Formation of a system for the distribution of production and the territorial-sectoral division of labor in the agricultural sector.

The bioclimatic potential of the agricultural territory is one of the most important conditions for its competitiveness. Of course, a general strategy for the spatial development of the country and a general layout for the distribution of agricultural production are needed. These documents should become the organizational and regulatory basis for the rational distribution of agricultural production in each specific agricultural territory. The agro-industrial production-distribution system will enhance the competitiveness of not only territories with relatively favorable environmental and economic conditions for intensive and high-tech agro-industrial production, but also stimulate the development of problem areas.

6. Development of the structure of the agricultural industry.

The structural factor of increasing the competitiveness of agrarian territories should be realized first of all through the transformation of the organizational and legal forms of production in the direction of achieving a rational ratio between large, medium and small forms of management. The process of improving the structure of the industry must be carried out to create equal competitive conditions and unify access to state support for business entities of various kinds operating in a specific agricultural territory. It is necessary to promote the massive development of small and medium-sized enterprises, their cooperation and contracting with large business, gradually transforming cooperative forms into one of the leading sectors of food production in agricultural territories. The formation of the competitive potential of agrarian territories will be facilitated by such organizational forms of management as sectoral and functional unions, agrarian clusters, strategic alliances and other partner associations.

7. Integration of agricultural production of agricultural territory into the international division of labor.

Practice shows that the presence on the agricultural territory of an integrated formation with the participation of foreign counterparties contributes to its economic and social stabilization. Integrated international structures are

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attractive for investors; they allow avoiding the aggravation of social problems and can maintain a certain price level in the market.

The creation and functioning of an integrated international formation on a specific agricultural territory contribute to its development, increases the employment of labor resources and provides for the modernization and updating of the material and technical base of the infrastructure. Such structures also introduce a new production culture, which is primarily focused on large-scale production. This has a positive effect on both the economic and social components of the activities of participating enterprises.

The development of economic integration in agriculture of the agricultural territories of Kazakhstan is currently associated with the country's participation in the Eurasian Economic Union and the CIS, the Shanghai Cooperation Organization, BRICS, APEC. To increase the competitiveness of agricultural territories by their climatic, territorial, organizational and economic characteristics, using the variety of relations between the states of these organizations, it is advisable to develop mechanisms for mutual trade, attracting investments, and implementing joint developments in the field of technical and technological agricultural innovations. This form of cooperation will help to create the competitive potential of agricultural territories due to the development of the export component, accelerate the modernization of agricultural production and increase its productivity, ensure adaptation of agriculture to climate change and innovative activity of economic entities.

5. Discussion

The developed strategy for the formation of the competitive potential of the agrarian territories of Kazakhstan requires considerable efforts in achieving, first of all, manageable parameters. It is necessary to weaken the concept of “differentiation of the rural and urban population” by 6 levels from step 2, to increase the concept of “quality of life of the rural population” by 6 levels from step 2, to ensure a “very high” value of the concept of “greening agricultural production and products” from step 4, in almost 9 steps to form the scientific potential of the industry, bring to the “very high” value from step 3 the concept “technological potential of the agricultural sector”. In modern management practices of the AIC of Kazakhstan, to ensure such a significant change in its condition is a very difficult problem. Therefore, using impulse modeling, it is advisable to develop a version of the strategy based on the best Alternative, taking into account the possibilities and suggesting a phased change of individual managed concepts. Adjusting the content strategy, determining combinations of the influence of managed concepts, determining a set of actions in time requires additional research and can be considered as its continuation. However, at this stage, the results obtained are of practical importance in terms of identifying priorities and a combination of factors that shape the competitive potential of Kazakhstan's agricultural territories.

Conclusion

The results of the study confirm the scientific hypothesis about the impact of the competitiveness of agricultural territories on the development of the country's agro-industrial production and the formation of its agro-export potential. On the example of the AIC of Kazakhstan, we justified the feasibility of implementing a mechanism for the formation of the competitive potential of agricultural territories, developed with the help of cognitive technologies. Thus, we can state the achievement of the research goal.

The proposed concept of researching the field of managing the competitiveness of agricultural territories is based on the algorithm of cognitive analysis of a difficult situation. The results obtained made it possible to determine the parametric content of the mechanism for the formation of the competitive potential of the agrarian territories of Kazakhstan, to generate and analyze, using impulse modeling, the country's AIC development strategy to achieve the established competitiveness targets “agricultural production index”, “gross added value per person employed in agriculture”, “share in global food export”.

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The areas of further research in terms of adjusting the developed strategy are determined to take into account the existing internal capabilities of the country, as well as limitations and challenges from the external environment.

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