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Research paper

Increasing Competitiveness of the Agrarian Sector of the Regional Russian Economy Russia

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Abstract

The Russian agro-food market is currently characterized by the imperfection of economic relations between the spheres of production, processing and marketing and by insufficient level of infrastructure development, which negatively affects the efficiency of agricultural production and weakens the competitive advantages of producers. The problem of ensuring the competitiveness of Russian agrarians worsened due to the events of foreign economic nature: Russia entering the World Trade Organization, food embargo, a drop in oil prices on world markets. The way out is seen in the interaction between the subjects of the food market on the basis of marketing and the creation of strategic production associations as an important element of the infrastructure of the agro-industrial complex (AIC). The present paper considers the possibility of using the marketing tool for interaction in the agricultural sector of the Russian economy under the conditions of the opposite tendencies of globalization: integration and disintegration. The aim of the study is to develop recommendations for ensuring the competitiveness of agricultural producers by interaction marketing techniques and the creation of strategic alliances. Therefore, models for identifying threats and opportunities for agricultural organizations are developed; the algorithm for state regional AIC development programs is justified, the scheme of marketing interaction between the subjects of the strategic association is improved; the methodology for assessing the synergetic effect from the formation of a strategic association of commodity producers is adapted. The theoretical and practical significance of the results obtained for the Russian AIC is to expand the toolkit for increasing the competitiveness of farmers through methods of marketing interaction, popular in international practice. The proposed recommendations can be used in making managerial decisions on the formulation of program-targeted strategies for regional AIC development Russia.

Keywords: *competitiveness, state regulation, regional agribusiness, marketing interaction, agriculture, agricultural production, agricultural producers, strategic associations.*

1. Introduction

Modern economic science has developed many views, concepts and approaches to the interpretation of the definition of 'competitiveness', its evaluation and methods of improvement. They are reflected in significant monographic works, scientific periodicals, other works of foreign and Russian authors. The scientific foundations of competition and competitiveness were laid down in the works of foreign scientists: Smith (2005), Samuelson (2004), Porter (1993, 2011), Hisrich and Peters (1991), Pezzenti (1976), Hosking (1993), Dolan and Lindsay (1992), Waterman (1988), Worst and Reventlow (1994), and others. A significant contribution to the problem was made by domestic scientists: Abramov (2004), Azoev (2013), Sadovskaya et al. (2009), Kleiner (2007), Fatkhutdinov (2000, 2012), Zavyalov (1995), Krotkov and Elenaeva (2001), Komkov and Lazarev (2007), Mansurov (2011) and others.

Analysis of economic literature on the research topic showed that there is no single definition of competitiveness. Under competitiveness, referring to the work of the Australian economist-scientist Freebairn (1987), the authors understand the ability of agricultural producers to provide consumers with products that meet the requirements in form, content, price, etc.; such interpretation takes into account both market and production factors.

Concerning the studies on the problems of marketing interaction presented in the media, it should be noted the scientific field is inadequately developed. The term 'marketing interaction' was introduced into circulation by the American scientist Berry (1983, 1995), who described it as "the construction of direct stable relationships with the consumer". The methodological aspects of this innovative marketing concept are presented in the works of Ambler (1999), Ansoff (2013), Hovell P.J. (2009), Tretyak (2008), Fartash et al. (2018), Tastan et al. (2018), and Davoudi et al (2018).

In the studied economic literature, the issues of increasing the competitiveness of agricultural producers based on the application of marketing interaction tools in the AIC against the deployment of the sanctions scenario and the aggravation of the agro-food market problems are not fully disclosed.

Sustainable development of the agrarian sector requires adequate state support, improvement of legislation and regulatory framework, creation of a modern infrastructure for markets for agricultural raw materials and food. The absence of the latter is considered by domestic and foreign experts as one of the main reasons for the low efficiency of agricultural production (Ushachev, 2015; Dayer, 1998). Development of the regional AIC is inextricably connected with close integration within the framework of separate food sub-complexes and creation of strategic associations.

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Foreign and domestic experiences testify that marketing as a crucial component agricultural enterprises activity broadens the prospects for development thereof (Kohls, 2000; Kotler, 2013; Golodova, 2007). Creating a strategic integration association within the framework of a food sub-complex enables to achieve synergy effect in terms of such indicators as the balanced financial result, gross output of products, labour efficiency, product capital coefficient, production cost and operating profitability of enterprises within the integration association (Campbell, 2004; Koladina, 2013). However, introduction and application of the marketing concept among commodity producers is extremely slow. The analysis of publications on the research topic shows that until now no scientific justification and methodological support were provided for the creation of agro-food strategic associations and the generation of stimulating state mechanisms. Regional food problems against aggravated competition on the domestic market and increased dependence on imports cannot be resolved without an active interference of the state. The highest form of the government regulation of AIC development is a state economic programming based on comprehensive use of tools (Altukhov, 2014).

Here, especially urgent is the need to elaborate appropriate methods and models for adaptation of state programs for AIC development to the concept of marketing relationship, forecasting threats and opportunities for the strategic associations being created and tools for enhancing competitiveness of the agricultural commodity producers within integrated structures. The objective of the present research is to develop recommendations on ensuring competitiveness of raw materials and food supplies producers through the relationship marketing tools and to create strategic associations of the agricultural commodity producers within the frameworks of separate food sub-complexes.

The article has a traditional structure and consists of five main parts: introduction, methodology, results, discussion, and conclusion.

2. Methods

The theoretical and methodological base of the research is the concepts and methodological approaches developed by Russian and foreign scientists in the framework of competition theories (the concept of 'competitive struggle', 'competitive advantages', 'competitive forces'), marketing interaction (the concept of 'partnership', 'competitive choice', 'object approach'). The research was carried out with the systemic and structural-logical approaches to the development of methodical aspects of increasing the competitiveness of agricultural production in the regional AIC, justifying the methods of forming strategic integration associations of agricultural producers.

The methods of economic and mathematical modeling were applied. To construct models for forecasting the overall level of food security and assessing the level of threats, the Kalman-Bucy adaptive filtering method was used.

The database of the research was formed with official data of the Federal State Statistics Service, its regional divisions, the materials of departmental reports, as well as the results of monographic studies of Russian and foreign scientists on reforming the tools for assessing the competitiveness of agricultural production, state regulation of agriculture, identification of threats and opportunities related to food security of the region.

The information basis for formulating the results of the study was the array of empirical facts obtained during the collection and processing of representative data.

3. Results

3.1. Enhancing the efficiency of aic development state programs based on relationship marketing principles

The system of state regulation of regional agrarian economy should contribute to the development of market infrastructure and to the maintenance of a stable, favorable market situation by conducting state intervention, providing the village with affordable loans.

The response to the challenges of political and economic influences on AIC development and, in particular, on its product subcomplex is developing and adjusting state concepts and programs which take into account regional competitive advantages and the use of marketing interaction tools. During the research, the authors analyzed the strategic directions for the development of the national AIC (Ushachev, 2015), ensuring food security, assessing the competitiveness of agro-industrial production (Zhemukhov, 2011), building effective models of competitive regional markets for agricultural raw materials and food (Kalitskaya, 2013). Studies reveal negative trends in the agrarian sector and the need for further adjustment of state regulation of regional agribusiness.

In this regard, the authors propose a universal conceptual framework for state-targeted programs for the long-term development of regional agribusinesses with the following main sections: analysis and assessment of regional agribusiness development; conceptual bases of agribusiness development; goals and objectives of the program; program activities; resource support of the program; organization, forms and methods of program management; mechanism and coordination of the program implementation; effectiveness evaluation.

The *Analysis and Assessment of the State of Development of Regional AIC* section consists of three parts: specification of the main features reflecting the current situation in regional AIC; analysis of conditions and factors determining the situation; primary conclusions.

In *Specification of the Current Situation in Regional AIC* the following issues are analyzed: dynamics of the volumes and structure of agricultural production; condition of the material and technical facilities of AIC; financial state of enterprises; social problems of villages.

In *Conditions and Factors Determining the Current Situation in Regional AIC*, the problems determining the situation in AIC are analyzed: prices disparity; reciprocal payments between enterprises; dynamics of purchasing power and consumption pattern; credit resources affordability; dynamics of budgetary support for rural commodity producers; situation with corporate restructuring; internal economic relations, etc. Credit resources affordability and changes in budgetary support for rural commodity producers are assessed with due regard for inflation adjustments.

In *Primary Conclusions* the results of the conducted analysis are summarized. The scenario of socio-economical situation development in regional AIC is formed for the case when the emerging trends persist. The potential volumes of production and consumption of essential foods are determined. At the same time, social consequences are forecasted (income and unemployment level in rural areas etc.). Measures to eliminate the negative impact on the situation in AIC are determined.

The *Conceptual Framework of AIC Development. Goals and Objectives of the Program* section consists of four sub-sections: statement of viewpoints, goals and objectives, factors, conceptual framework of implementation.

3.1.1 Original viewpoints

The formally approved concepts and programs for stabilization and development of the AIC, which are subsequently used as a starting point in elaboration of this program, are determined. The priority level of AIC development with regard to other complexes and regional economy spheres is substantiated by the necessity to ensure long-term food sovereignty, the 'backbone' position of AIC in the production and structural complex of the region, multifunctionality of rural areas, and technological peculiarity of the agricultural sector.

3.1.2 Factors determining the prospects for the regional AIC development

The natural, material-technical and labor potential of AIC, capacity of the local agri-food market, opportunities of entering the markets of other regions, structural changes due to reforms, and opportunities of attracting private capital are assessed.
Goals and objectives of the program are defined based on the conducted analysis, initial position and factors of AIC development through identification of the global (key) goal and its decomposition, or formation of the so-called goal tree. Selection of the global goal depends on the specific nature of the region. Implementation of the global goal in quantitative terms means achieving milestones in terms of food production guaranteed by the resource potential of the region. Social component of the program global goal can be determined quantitatively by the level of the average monthly salary in agriculture and its relation to a similar indicator in industry. The list of goals and objectives of the program under such approach will have a systemic nature, but implementation thereof may not coincide in time. One goal can and should be achieved quickly with minimum financial and material expenses, whereas other goals will be implemented during a long period with considerable investments and if previous goals are achieved. In this respect, while elaborating a system of measures, the priorities of their resource provision should be sorted out properly.

3.1.3 Conceptual framework of program objectives implementation

For the efficient development of AIC a complex approach is taken, where specific measures are implemented in all the target directions. Improvement of forms of ownership and business proceeds from the expediency of their rational combination and principles. The concept plan defines the primary directions of restructuring in agriculture, processing industry and agricultural service, in the spheres of intermediate products, storage and trade. The central place in the concept and program is resolving the issues of recovery, modernization and rehabilitation of AIC production potential. A particular role in the regional AIC development is the set of measures to provide conditions for efficient operation of agricultural organizations.
The aggregate of the program measures is determined in the process of the goal tree generation on the lowest level. The set of measures is to ensure solution to problems and achievement of the stated goal. As a result, the aggregate of measures is sufficient to implement the global goal and achieve its quantitative parameters. Each measure has a different value despite its necessity for implementation of the global goal. The most valuable are the measures that ensure a multiplier effect, i.e. their implementation has a positive impact practically on all the elements of AIC and helps resolve the majority of the above stated objectives. Such measures are the first priority, providing financial and material resources for that. Some measures ensure solution not to one but to several objectives, others can be implemented by means of organizational arrangements without any essential financial expenses. Such groups of measures is prioritized in the program. Finally, some measures are very resource-intensive, and periods of their full completion can extend for decades. Under conditions of acute shortage of financial (including investment) resources, this group of measures ranks second in priority. Each program measure has an implementation algorithm: order and date of implementation, required financial resources, coherence pattern with other measures.
The *Resource Provision of the Program* section considers the need in financial resources for implementation of the program measures, finance sources, potential levels of financial support, and necessity in the primary material-technical and labor resources.
General demand in financial resources is the expenses required for implementation of the program measures. Calculation of expenses is performed in terms of program measures and years of implementation. Brief analysis of resource-intensity of measures ensuring achievement of one of the goals of the first level as well and assessment of the potential effect from their implementation is provided.
All possible sources are attracted for the program funding: governmental, regional, district and municipal budgets; long-term credits; funds of AIC enterprises, non-budgetary funds, etc. Calculating allocation of financial resources is performed in terms of sources and years of the program implementation. Budgetary sources (governmental and regional budgets) have a considerable ratio in total funding of the program; besides, their provision initiates other funding sources. At the same time, budgetary appropriations are in constant deficit, and it is necessary to calculate the budgetary sources in terms of three alternative forecasts (optimistic, pessimistic and intermediate). The first (optimistic) implies appropriation of budgetary funds in full amount which is required for implementation of all the measures specified in the program. The second (pessimistic) is calculated for the worst scenario of formation of the governmental and regional budgets. Appropriation of budgetary funds for AIC needs is fixed in it and the deficit in program funding is determined. The intermediate option is calculated under the principle of compromise between the first and second options. Further on, the priority measures are determined for the second and third options, as well as the measures to be refused. Corresponding adjustments are made to the program target indicators.

3.1.4 Arrangement, forms and methods of the program management

Ordinarily special governing bodies are created to run targeted comprehensive programs, yet this is not expedient under conditions of finance deficit and crisis in AIC. Moreover, the existing governing bodies are basically intended to resolve such problems. If a special governing body is created for the program, functions will automatically overlap. Therefore, within the frameworks of program implementation, it is wise to move to a pattern of AIC management by objectives. In this respect, the governing body of the regional agro-industrial complex becomes a governing body of the program. The internal structure of this governing body is supplemented in accordance with the program structure by the required departments and sectors functionally oriented at implementation of the program measures, as well as by implementation of supporting services.
The program implementation mechanism consists of the following sub-systems: organizational, economic and legal.
It is expedient to form the organizational mechanism vertically, involving into contract relations from top downward: the governing body which is a client (general contractor), work performers – contractors, and performers of certain stages of work - subcontractors. An inherent element of the organizational mechanism of the program implementation shall be socio-economic monitoring of the processes taking place in AIC. It provides a feedback from the objects and subjects of AIC. Monitoring helps reveal the reaction of the latter on the consequences of particular measures specified in the program. Based on the information incoming from the monitoring, a differentiated analysis of the economic and social situation in rural areas, as well as attitude of rural population, heads, specialists and workers in focal points of conducted transformations is performed. Based on the analysis results, the required amendments are timely made in the program. It enables to avoid expenses inevitable in any reform. It is expedient to arrange the monitoring system based on the information, analysis and control department of the program governing body.
The economic mechanism stipulates provision of the governing body with the program of evaluation and use of financial resources. The program implementation mechanism is based on the competition contract system operating under the principle of contract award. In order to engage in competitive tender as many

bidders for a certain type of work as possible, privileges provided by the legislation are offered.

The basis of the legal mechanism is identification of the RF articles of law and regional regulatory acts which realize legal confirmation of fundamental provisions of the respective regional AIC development program.

Coordination of the program fulfillment consists in ensuring concerted actions of all the management levels and performers (enterprises and organizations) taking part in implementation. Coordination system includes three levels of hierarchy (Vasilyeva, 2006; Thorelli, 1986). The highest level implies collective leadership in taking key decisions regarding program implementation and concurrence of actions of all the performers. The program manager is in charge of the Coordination commission. The middle level implies coordination and control over the activity of performers and co-performers of measures and operations within certain program of the first level. Coordination and control functions are assigned directly to the managers of sub-programs (chief coordinators), who create working groups in order to ensure collective leadership in settling the most urgent matters. The group members are approved by the program manager. The lowest level implies coordination and control over the activity of contractors and subcontractors pertaining to objectives and operations within respective subprograms of the second level. Coordination and control functions are assigned to the sub-programs managers. Coordination activities are fulfilled similarly to the middle level. Coordination of work can be organized largely on (cautionary) monitoring.

In *Assessment of the Program Implementation Efficiency* section, the course of events in regional AIC as a result of implementation of certain measures, their combination and the program as a whole is determined. Special attention is devoted to those measures that have a multiplier effect. The effectiveness of such activities is palpable throughout the chain of their operation. The program efficiency is assessed with respect to the stages of its implementation. For regions characterized by the crisis in AIC, the following stages are envisaged: stabilization; post-crisis development; achievement of the program level development.

Quantitative effect from implementation of the measures having a direct impact on the global goal of the program (and on the choice of the economic efficiency which is easy to calculate) is determined. The economic effect of separate measures is summed over the sub-programs and the program as a whole and is compared with the budget required for implementation. The internal structure of the program can be changed on a case-by-case basis. For instance, the sections reflecting arrangement, forms and methods of the program management, program implementation mechanism and program coordination can be united. The united section is named *Program Implementation Mechanism*. It is quite appropriate since arrangement, management and coordination of the program are all elements of the implementation mechanism (Kirilenko, 2008; Korshunova, 2012).

The stated principles of the program elaboration combined with the proposed internal structure and methodical recommendations make a scientific substantiation of the program-targeted document required to settle urgent problems in regional AIC associated with the import phase-out and provision of food security.

3.2. Methodological approaches to threat forecasting and use of new opportunities based on relationship marketing in regional aic

Food security of the region as a sub-system of the national economy is understood to mean the combination of its properties ensuring achievement of the highest possible contribution of the region to the development of national economy and to provision of food security of the whole country. Food security of the region as a relatively independent food system is the combination of its properties ensuring its progressive development under conditions of unsettling impact of various threats (Dudanov, 2012; Kaplinsky, 2008). The following types of threats are distinguished:

- with respect to the system being considered – external and internal;
- with respect to duration – constant and temporary, short-term and long-term;
- with respect to probability of occurrence – real and potential, hardly probable and highly probable;
- in terms of control capabilities – controlled and uncontrolled;
- in terms of the occurrence sphere – economic, social, military, informational, scientific and technical, political, criminological, legal, environmental.

The methods of assessment of the food security level in the region is presented in Fig. 1.

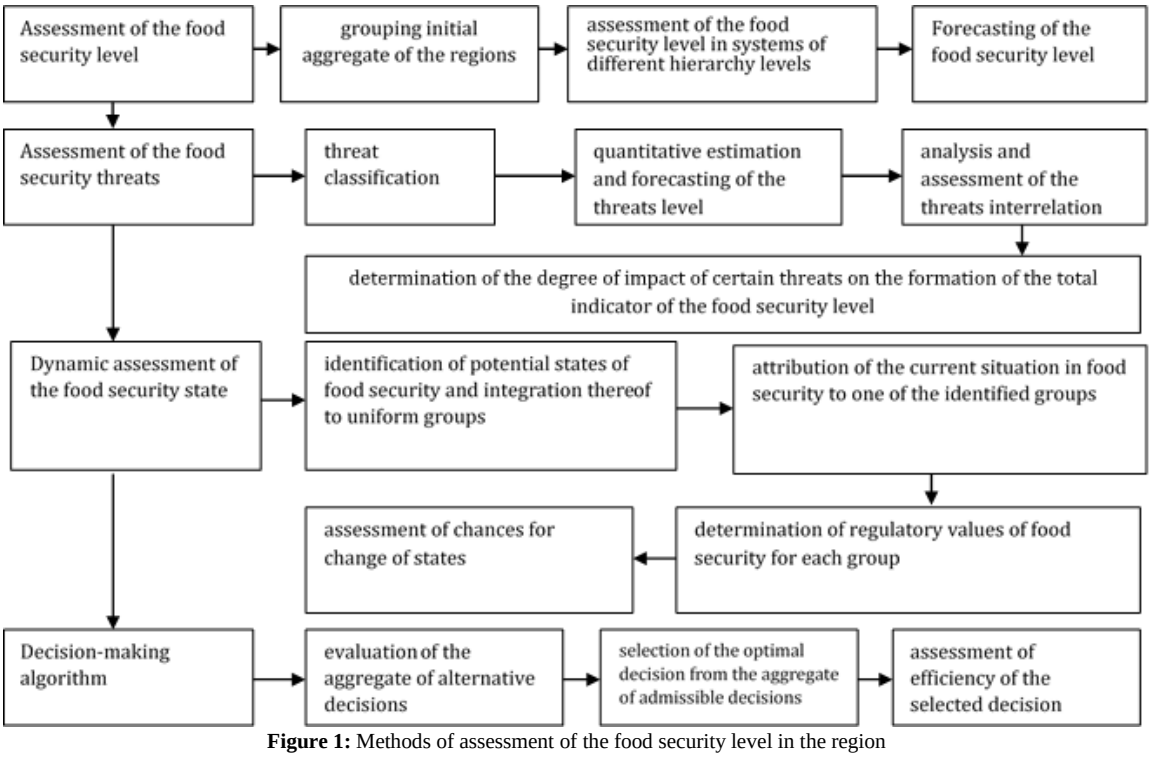

Figure 1: Methods of assessment of the food security level in the region

The grouping model is required to divide the initial aggregate of the regions to three groups (favorable, pre-crisis, in crisis) depending on the degree of food security threat manifestation in the region. Iterative technique of averages is used as a grouping method. The grouping is performed successively with respect to nine threats, for each of which a matrix of the basic data is formed:

$$X^s = \{x_{ij}^s\}_{n \times q}, \quad (1)$$

x_{ij}^s

where – is the value of j index, describing the state of i region and referring to s threat, $s = [1, p]$;

p – is a total number of threats;

q – is a total number of indexes, describing *p* threat;

n – is a number of regions.

Use of the model enables to determine the proportion of regions from each group in the total aggregate of regions, as well as to analyze the state of each separate region from the point of view of the degree of manifestation of each threat.

While elaborating the model of threats classification it is assumed that based on analysis three subsets of indexes characterizing the economic security of the region in the spheres of reproduction of material, labor and financial resources are formed. Specific threats shall be classified exactly within the frameworks of each of the specified spheres. For that it is proposed to proceed from the initial system of indexes$X^s_1, X^s_2, \ldots, X^s_r$, where r – is the number of indexes characterizing s sphere, $s=[1,3]$, to the system of principal components $F^s_1, F^s_2, \ldots, F^s_p$, $p < r$, which are the linear orthogonal combinations of initial indexes:

$$F^s = A^s X^s, \; A^s_i A^{s,T}_i = 1, \; A^s_i A^{s,T}_j = 0, \; i \neq j \quad (2)$$

It enables to determine the list of socio-economic indexes characterizing each threat and evaluate the proportion of each of initial indexes in threat formation based on the factor loading analysis.

The algorithm of the model building includes the following primary stages: generation of matrix of the basic data, identification of initial principal components, and rotation of principal components. In accordance with the specified algorithm a matrix of the basic data containing information about regional indexes was generated for the sphere of reproduction of labor resources. The results of threats classification in the sphere are presented in Table 1 where two principal components are distinguished.

Table 1: Results of threats classification on indexes

Name of the initial index	Factor loadings for principal components	
	F_1	F_2
real income of the most part of population	0.94	0.03
consumption pattern and requirements to the product quality	0.87	0.05
freedom of competition of agricultural commodity producers	0.85	0.07
state of the external economic relations	0.97	0.04
dynamics of the world prices for food products	0.93	0.12
dependence of agrifood market on the energy market	0.88	– 0.09
competitiveness of agriculture and food industry	0.60	– 0.38
shortage of qualified personnel	0.70	– 0.10
change of the national currency rate	0.58	– 0.65
employment level	0.01	0.67
technical and process modernization rates	– 0.02	– 0.07
disparity of prices	– 0.32	– 0.76
market openness and dependence on imports	– 0.08	0.74
instability of agricultural production in the world	0.01	0.94
percent of an explained variance	47.34	24.21

Analysis of factor loadings obtained after rotation of the basic matrix of factor loadings enabled to assume that principal component F^1 reflects the threat of consumption reduction, and F^2 reflects the threat of deterioration of qualitative and quantitative staff of labor force.

While elaborating the model for assessment of threats it is assumed that each *s* threat of F^s is characterized by the set of initial socio-economic indexes $X_1^s, X_2^s, \ldots, Xq^s$, where q– is the number of indexes describing *s* threat. Number q for each threat can be quite large, therefore appears a problem of reducing the dimension of the informational space of indexes describing each threat.

General view of the model for threat assessment:

$$U^s = f_s(X_1^s, X_2^s, \ldots, X_q^s), \quad (3)$$

where U^s – is the resulting index of the level of*s* threat that can be obtained by several methods.

Firstly, a representative index is selected for each *s* threat from the initial aggregate of indexes $X_1^s, X_2^s, \ldots, X_q^s$. In this case:

$$U^s = X_k^{sr}, \; k=[1,q]. \quad (4)$$

At that, each index of initial aggregate is considered as a point in *T*-dimensional space, where *T* is the number of the region development periods. Distances between $X_1^s, X_2^s, \ldots, X_q^s$ points are analyzed as a criterion for selection of the optimal X_k^{sr} point.

Second, U^s index represents an artificially designed value. In this case the formula of a f_s function is determined as a result of analysis of the distances between $X_1^s, X_2^s, \ldots, X_{k-1}^s, X_{k+1}^s, \ldots, X_q^s$ points and a reference point.

General view of the model for assessment of the overall level of food security is as follows:

$$M = f(X^{r1}, X^{r2}, \ldots, X^{rp}), \quad (5)$$

where$X^{rs} = (x_1^{rs}, x_2^{rs}, \ldots, x_T^{rs})$ – is a column vector characterizing representative index of sthreat, $s = [1,p]$;

T– is a total number of the region's development periods;

p – is the number of threats taken into account in the research.

Formula of *f*function is determined as a result of analysis of the distances between points-periods of the region development$X^r_t = (x_t^{r1}, x_t^{r2}, \ldots, x_t^{rp})$, $t=[1,T]$ and a reference point P_v:

$$P_v = (p_v^1, p_v^2, \ldots, p_v^p),$$

$$p_v^s = \max_t x_t^{rs}, \; s = [1,p], \quad (6)$$

$$d_t = [\sum_{s=1}^{p} (x_t^{rs} - p_v^s)^2]^{\frac{1}{2}}, \quad (7)$$

whered_t – is the distance between *t*point and a reference point.

As a result the vector of index values of the food security is obtained

$$M=(M_1, M_2, ..., M_T), \quad (8)$$

$$M_t = 1 - \frac{d_t}{c_0} \quad (9)$$

$$c_0 = \overline{d} + 2S_d,$$

$$\overline{d} = \frac{1}{T}\sum_{t=1}^{T} d_t, \quad S_d = [\frac{1}{T}\sum_{t=1}^{T}(d_t - \overline{d})^2]^{\frac{1}{2}}, \quad (10)$$

where M_t is the value of the food security level for the t period of the region development.

The index of the food security level M obtained that way enables to reduce the dimension of the initial system of indexes without any significant loss of information, and to organize the studied aggregate of the region's development periods in terms of the food security level.

The model for forecasting the overall level of security and the model for forecasting threat level were developed based on the Kalman-Bucy method of adaptive filtering (Kalman, 1960). General view of the model:

$$\hat{M}(t_k) = F(t_k, t_{k-1})\hat{M}(t_{k-1}) + K(t_k)[z(t_k) - H(t_k)F(t_k, t_{k-1})\hat{M}(t_{k-1})] \quad (11)$$

$$K(t_k) = \eta(t_k, t_{k-1})H^T(t_k)[H(t_k)\eta(t_k, t_{k-1})H^T(t_k) + R(t_k)]^{-1} \quad (12)$$

$$R(t_k) = traceM\{\nu(t_k)\nu^T(t_k)\}$$

$$\eta(t_k, t_k) = [E - K(t_k)H(t_k)]\eta(t_k, t_{k-1}) \quad (13)$$

where $\hat{M}(t_k)$ – is the assessment of the variable of state of the regional food system, in the capacity of which the index of the security level or index of a separate threat level is considered;

$F(t_{k+1}, t_k)$ – is a transient state vector;

$K(t_k)$ – is Kalman coefficient;

$z(t_k)$ – is observation variable;

$H(t_k)$ – is a measurement vector;

$\nu(t_k)$ – is a variable of random error of measurement;

$\eta(t_k, t_k)$ – is a covariance matrix of filtering error.

It should be noted that change of the security level index depends not only on the time from the initial moment, but also on the type of threats, their direction and intensity of impact on its change. Therefore, it is highly important to study dependences of the food security level in the region on the threat indexes. The assigned task is settled within the framework of building the model of dependence of the food security level in the region on the threat level. Its general view looks as follows:

$$M=a_0+a_1U^1 + a_2U^2+...+ a_pU^p, \quad (14)$$

where M – is the level of food security;

$a_0, a_1, ..., a_p$ – are model coefficients;

p – is the number of threats.

The primary threats for the food security level of the region are: dependence of the agrifood market on the energy market, competitiveness level of the agriculture and food industry, dynamics of the exchange rate, occupational level, rates of technical and structural modernization, disparity of prices, market openness and dependence on imports.

Based on the above described models, there was assessed and forecasted the level of separate threats and ovarall level of food security, and estimated the dependence of the overall level of food security on the level of separate threats in the forecast period.

While building the model of dependence of the security level on the level of separate threats it was initially assumed that all seven above mentioned threats shall be included in the model as exogenous variables. However, analysis of the matrix of pair correlations testifies the presence of multiple correlation between the threats considered. In order to eliminate it the method of principal components was used. The results are presented in Table 2.

Table 2: Factor loadings

Conventional sign	Threat name	Principal components	
		F_1	F_2
U^1	dependence of agrifood market on the energy market	0.8953	–0.1072
U^2	level of competitiveness of agriculture and food industry	–0.9407	0.1416
U^3	dynamics of the exchange rate	–0.8729	–0.2178
U^4	employment level	0.2936	0.7750
U^5	AIC modernization rates	–0.8211	0.5452
U^6	disparity of prices	0.9063	0.1131
U^7	market openness and dependence on imports	0.1780	0.8801
	Eigenvalues	4.0620	1.7642
	percent of an explained variance	58.03	25.20

Equations of principal components:

$$F_1 = 0{,}2204U^1 - 0{,}2316U^2 - 0{,}2149U^3 - 0{,}2021U^5 + 0{,}2231U^6, \quad (15)$$

$$F_2 = 0{,}4393U^4 + 0{,}4989U^7. \quad (16)$$

The model of dependence of the food security level M on the principal components values F_1 and F_2 looks as follows:

$$M = 0{,}5659 + 0{,}0847 F_1 - 0{,}0056F_2. \quad (17)$$

Overall equation characterizes the dependence of the food security level in the region on the level of threats:

$$M = 0{,}5659 + 0{,}0187U^1 - 0{,}0196U^2 - 0{,}0182U^3 - 0{,}0025U^4 - 0{,}0171U^5 + 0{,}0189U^6 - 0{,}0029U^7 \quad (18)$$

The conducted analysis of the model parameters showed that dependence of the agrifood market on the energy market, competitiveness, exchange rate fluctuations, occupational level, rates of technical and process modernization, disparity of prices, market openness and predominance of import products has the greatest impact on the security level of the region. Thus, management of particularly these threats in the first turn will ensure strengthening of the food security in the forecast period.

Russia's accession to the WTO is followed by not only new threats, but also new opportunities that can be used by national commodity producers to expand the market outlets, gain access to

new production technologies etc. The foregoing fully refers to the agro-industrial complex as well. At that, certain regions also have new opportunities due to globalisation of markets and production. The main factor that can be instrumental or limiting for these opportunities is a competitiveness of certain sectors (Yemelyanov, 2003; Kirzner, 2001).

Realization of competitive advantages of regional AIC is complicated in practice by a number of circumstances: non-competitive technologies that do not meet modern standards; high resource intensity and cost of production; depreciation of fixed assets along with limited opportunities for internal capital accumulation; lack of information infrastructure to support the competitiveness of agricultural exports and rationalize the structure of imports.

Solving the competitiveness issues of agrarian sphere enterprises is possible only at achievement of the corresponding purposes acting as a basis of formation and realization of the state programs of regional AIC development.

The major goals of such programs are: scientific and technical (provision of innovation development); production (satisfaction of society's needs in products of certain type); economic (maximization of contribution to the government revenues); social (satisfaction of social needs). Attention should be given to the formation of all the four goals ensuring competitiveness of production and sector both on the stage of production planning and on the stage of plans (programs) implementation, Table 3.

Table 3: System of goals for ensuring competitiveness of regional agricultural producers of the Russian Federation

Scientific and technical	Economic	Production	Social
1. Efficient use of stabilization and growth opportunities. 2. Enhancement of technical level of production. 3. Improvement of product quality. 4. Enhancement of competitiveness on international markets. 5. Development of the external economic activity. 6. Participation in international research projects. 7. Renewal of infrastructure of agricultural production.	1. Provision of the foreign exchange inflow. 2. Income stabilization as of the current period and for the long term. 3. Elimination of price discrimination of agricultural productions. 4. Rational use of investments. 5. Enhancement of profitability level of agricultural production. 6. Improvement of efficiency of export sales channels.	1. Reduction of consumption of material resources as compared to competitors. 2. Product differentiation and improvement. 3. Growth of labor productivity and yield capacity. 4. Satisfaction of consumers' needs. 5. Creation of a stable controlled operating system of agricultural production for export. 6. Development of the agricultural products processing at the local level.	1. Making a positive image of products of domestic agricultural producers. 2. Ensuring compliance of consumers' needs with the available resources. 3. Enhancement of professional training of the staff in the agricultural sphere of the agro-industrial complex. 4. Formation of a favorable climate to increase stability of the agricultural production.

Agricultural producers in the external market must rely, first of all, on their policies, the value system, and a well-developed strategy with a focus on marketing, the interests of owners. Agrarians should independently find a way out of difficult economic situations; it is necessary to analyze the retrospective and build forecasts, assessing the sequence and priority of measures to improve competitiveness.

At the initial stage, the main efforts should be directed to the technical and technological support of the agricultural production cycle through modern agricultural machinery and equipment, devices for primary processing of raw materials, and the introduction of advanced technologies.

In the future, the increase of competitiveness of agricultural enterprises in foreign markets will be facilitated by the identification of reserves, the development of resource-saving strategies and their effective implementation. Within this stage, the attention of the agricultural producer should be focused on an objective assessment of the level of costs. Figure 2 presents an algorithm for realizing the goal of reducing the level of costs for the production and sale of export products of agricultural products intended for export.

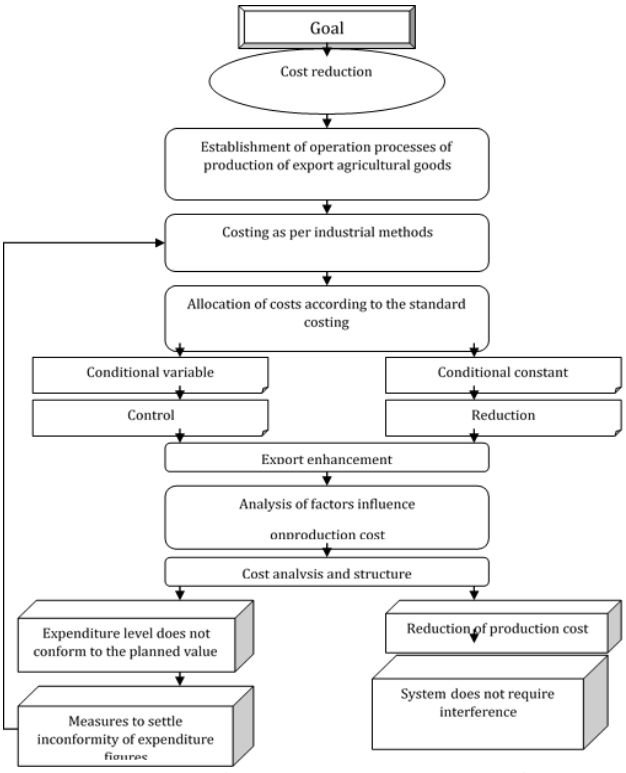

Figure 2: Reducing the costs for the production and marketing of export products

The proposed model to improve competitiveness in the practice of regional agricultural enterprises will allow the agrarian sector to maintain the existing potential in the conditions of competitive pressure from foreign producers/suppliers of food products in connection with Russia entering WTO.

3.3. Business grounds for enhancement of competitiveness of agricultural commodity producers basing on relationship marketing

The marketing strategy at the enterprise determines how to attract attention of the target markets, meet their requirements and achieve the goals of the enterprise. At that the primary objectives of the marketing department shall be: assortment planning, sales, promotion and price, which ensures performance enhancement of the agricultural products sales. The activity of each enterprise depends on the general state of the national economy, therefore the specific nature of its operation on each cyclical phase of macroeconomic fluctuations (contraction or recovery, recession or sustainable growth) mirrors the state and specific nature of operation of certain enterprises, requiring a relevant strategy of development and market behaviourfrom them (Koshurnikova, 2013). The strategy of development of agricultural enterprises also depends on the level of governmental interference in the agricultural sector of economy. The authors suggest determining the potential profit from sales of a particular type of agricultural products for a single period by the following formula (developed by them) (19):

$$Q - \frac{Q \times L}{100} \times \frac{P_r - C}{1 + R}, Q - \frac{Q \times L}{100} \times \frac{P_r - C}{1 + R}, \quad (19)$$

whereP_r – is a potential profit with due regard for risk, RUB;
Q – is volumes of products prepared for sales, hwt;
L – is storage losses, %;
R – is sales risk coefficient;
P – is a product sale price, RUR;
C – is a product selling cost price, RUR;
The sales risk coefficient is determined by the formula (20):

$$R = (\sum_{i=1}^{k} n / \sum_{j=1}^{r} N) / T, \quad (20)$$

Where n – is the value of offer of the given type of product by the agricultural commodity producer;
k – is the number of commodity producers on the market,
i – is the ordinal number of commodity producer
N –is the value of demand for certain agricultural product by the individual consumer;
r – is the number of consumers on the market;
j – is the ordinal number of consumer,
T –is the longest possible storage period of agricultural products of certain yield;
Performance enhancement of the agricultural production is practically impossible without improvement of the productive-economic relations between the agricultural and industrial processing enterprises. Scientific researches show that a sharp decline in agricultural production is considerably affected by weakening of integrative and economic relations between producers of agricultural products and processers (Dayer and Singh, 1998). Monopoly of the processing enterprises does not allow creating proper conditions for the agricultural commodity producers due to use of low prices for the agricultural raw materials. Therefore the agricultural integration under current conditions shall ensure equal conditions for all parties of the integration process and meet the market requirements.
For this purpose, it is advisable to develop a strategy for transferring subcomplexes of regional agribusinesses to working conditions in accordance with WTO principles that ensure high-quality and efficient production.
Based on studies of the functioning of the regional sugar beet subcomplex, the authors note that in order to increase its effectiveness, the following production conditions are necessary: optimal concentration of crops; use of high-yielding varieties and hybrids, advanced cultivation technologies (Gediev and Klintsevich, 2014). At the same time, the activities of the regional government bodies of AIC should be directed not only at the development of beet-growing enterprises, but also at their interaction. The solution to this problem is using marketing interaction tools and creating strategic associations of enterprises of all the three spheres of AIC into a single conglomerate with agreed goals and objectives. The authors propose the following structure of such strategic association on the example of the beet-sugar subcomplex of the regional AIC (Figure 3).

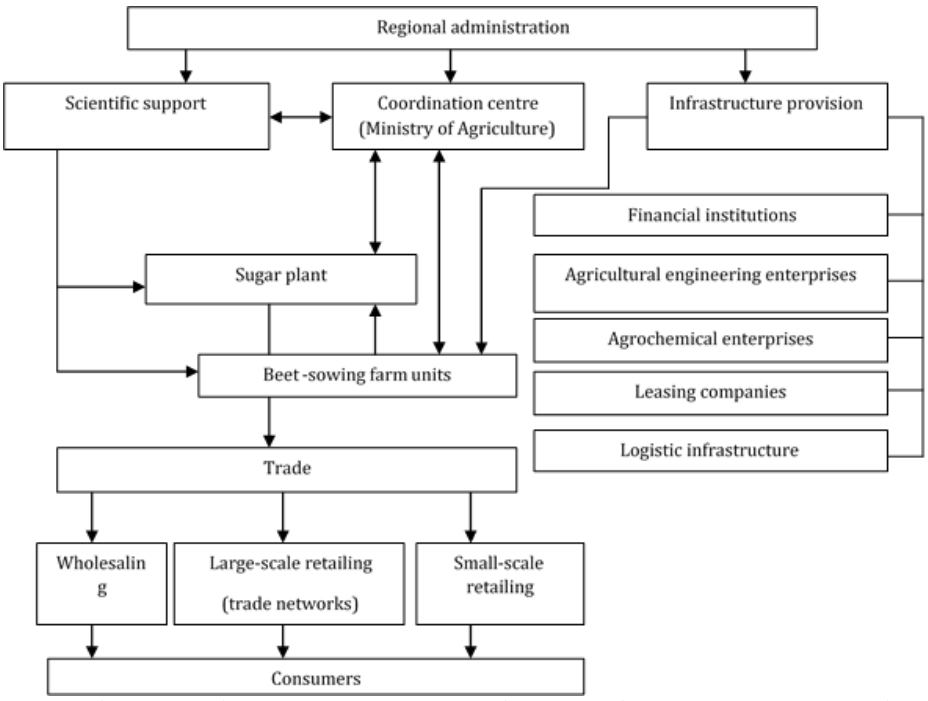

Figure 3: Cooperation of the entities of strategic association within the frameworks of the beet-sugar sub-complex of the regional AIC.

Coordination centre (represented by the Ministry of Agriculture, within the frameworks of which a special working group is created) is designed to coordinate goals and objectives of the association parties and settle quickly the emerging problems. The working group consists of representatives of all enterprises and organizations within the strategic association and vested with respective authorities. The proposed association of the sub-complex representatives shall consist of the following elements: processing plant; enterprises supplying raw materials; infrastructure including production and technical services, material and engineering support; agricultural machinery industry as equipment supplier; chemical industry as a supplier of mineral fertilizers.

The core element of the strategic association shall be the integrating food and process chain the primary objective of which is to allocate the benefit of the final product to achieve the minimal sale price and in the long term retail price for sugar competitive with the prices of foreign producers. For that the relationship marketing mechanism is proposed, under which the decisions are taken proceeding from the common goals of the association in the area of competitiveness provision by means of achieving the minimum added value over the whole process chain on the one hand and cost minimization on the other hand. Creation of such association will enable to decrease the production cost of sugar to competitive values in the long term by means of optimum arrangement of the production process and processing of sugar beet (particularly with respect to capacity utilization of the plant during harvest time). Such approach will enable to create a growth point in the beet-sugar sub-complex of the regional AIC including a large number of different enterprises and organizations which will allow increasing competitiveness of AIC enterprises in the long term under conditions of globalization by means of synergy effect.

4. Discussion

The process of Russian economy involvement into the global economy is attended by new challenges associated with a sharp growth of business competition on traditional national markets. It fully refers to the national market of agricultural products, raw materials and food. During the period of agrarian reforms the functional capabilities of the agro-industrial complex considerably changed. Development of the agricultural production under globalization conditions is possible upon association of enterprises and organizations to increase competitiveness within the framework of certain process chains.

The foreign food policy should take into account the interests of business partners in the world food market, but not to the detriment of the domestic producers' own interests. Therefore, the urgency of issues of development of export possibilities and improvement of the export structure, provision of access of the Russian products and services to foreign markets, and provision of protection for domestic producers is raised. The crucial elements of the state regulation of agri-food market stipulated while elaborating regional comprehensive programs for AIC development shall be: sustention of general return rate in the sectors of agro-industrial complex by means of government support of the village and effective demand stimulation; antimonopoly regulation of proportions of intraindustrial and interindustrial exchange, increase of competitive potential of AIC sectors, increase of real income of the population by means of increasing employment, salary and social benefits.

Russia entering WTO generates a great many of new opportunities and at the same time constitutes a threat for a number of components of the socio-economic development. One of such threats is the threat for food security of Russia as a whole and its separate regions in particular. The problem of ensuring food security is of supreme importance for any state. Food security of the country should be considered as an overall food security of regions within the Russian Federation. It testifies the importance of studying the problem of food security in certain regions, since most threats bear a strongly pronounced regional nature.

5. Conclusion

Prospects for agricultural production development in Russia's regions at the current stage are associated with the intensification of international competition, which predetermines a significant increase in the role of state programs for AIC development. The study analyzes state concepts and programs that take into account regional competitive advantages and the use of marketing interaction tools. Conclusions are drawn about the negative tendencies in the agrarian sphere and the need to further adjust the system of state regulation of regional agribusiness. To increase the effectiveness of the implementation of regional programs for AIC development, the authors proposed a methodical approach that allows interlinking the goals and objectives of the program with the mechanisms for their implementation.

The article analyzes the new opportunities and threats associated with Russia entering WTO in the aspect of regional AIC development. Threats that are significant in strength and likelihood and related to the food security of the region were identified. To evaluate, analyze, forecast and manage food security, a comprehensive scheme is proposed not only to identify the most probable threats but also to quantify them and to use available reserves for adaptive response to new threats..

Further development of the regional agribusiness is inextricably linked by integration within the framework of separate product subcomplexes and the creation of strategic associations. The initial step is to create marketing departments in large agricultural enterprises and to implement principles of marketing interaction. The creation of such departments will optimize the work of agricultural enterprises. At the second stage, it becomes possible to form strategic associations of enterprises of various industries within the framework of a single product subcomplex. Formation of a strategic integration association within the regional product subcomplex will allow achieving a synergistic effect on such key indicators as a balanced financial result, gross production, labor productivity, capital intensity of production, production costs and profitability of operating activities.

6. Credits

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References

[1] Abramov V. L. Management of competitiveness of economic systems / V.L. Abramov; Moscow. IHSB 'MIRBIS', Moscow; Perm: Perm State Administration. center of scientific-techn. Inform., 2004. 294 p.

[2] Altukhov A.I. Prodovolstvennaya bezopasnost Rossii v usloviyakh zarubezhnykh sanktsiy [Food security of Russia under conditions of foreign sanctions]. AIC: Economics, Management, 2014, No.12, pp.19-29.

[3] Ambler T. Practical Marketing. (Russ. ed.: Petrova I., Vasilyeva V., Kapterevskiy Yu. N. Prakticheskiy marketing. St. Petersburg, PiterPubl., 1999. 395 p.).

[4] Ansoff I. The New Corporate Strategy. (Russ. ed.:Novaya korporativnaya strategiya. St. Petersburg, Piter Kom Publ., 2013. 416 p.).

[5] Azoev G.L. Konkurentsiya: analiz, strategiya i praktika [Competition: analysis, strategy and practice]. Moscow: Center for Economics and Marketing, 2013. 208 p.

[6] Berry L. L. Relationship marketing of services – growing interest, emerging perspectives / L. L. Berry // Journal of the Academy of Marketing Science. 1995. V.23. Issue 4. P. 236-245.

[7] Berry L. L. Relationship Marketing. Emerging Perspectives on Service Marketing / Eds. L. L. Berry, G. L. Shostack, G. D. Upah. Chicago, 1983. P. 25.

[8] Campbell A. Strategicheskiy sinergizm [Strategic Synergy]. St. Petersburg, Piter Publ., 2004. 406 p.

[9] Davoudi SMM, Fartash K, Venera G. Zakirova, Asiya M. Belyalova, Rashad A. Kurbanov, Anna V. Boiarchuk, Zhanna M. Sizova (2018). Testing the Mediating Role of Open Innovation on the Relationship between Intellectual Property Rights and Organizational Performance: A Case of Science and Technology Park, EURASIA Journal of Mathematics Science and Technology Education, 14(4), 1359-1369.

[10] Dayer J, Singh H. The relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage // Academy of Management Review. 1998. V.23. P.660-679.

[11] Dolan EJ, Lindsay DE Market: microeconomic model/Edwin J. Dolan, David E. Lindsay. St. Petersburg: Pechatny dvor, 1992. 496 p.

[12] Fartash K., Davoudi, S.M.M., Tatiana A. Baklashova, Natalia V. Svechnikova 4, Yulia V. Nikolaeva, Svetlana A. Grimalskaya (2018). The Impact of Technology Acquisition & Exploitation on Organizational Innovation and Organizational Performance in Knowledge-Intensive Organizations, EURASIA Journal of Mathematics Science and Technology Education, 14(4), 1497-1507.

[13] Fatkhutdinov R.A. Konkurentosposobnost: ekonomika, strategiya, upravleniye [Competitiveness: economy, strategy, management]. M.: INFRA-M, 2000. 311 p.

[14] Fatkhutdinov R.A. Strategicheskiy menedzhment [Strategic management]. Moscow, Intel-Sintez, 2012. 246 p.

[15] Freebairn J.W. Implications of Wages and Industrial Policies on Competitiveness of Agricultural Export Industries // Review of Marketing and Agricultural Economics. 1987. V.6: P.79-87.

[16] Gediev K.T., Klintsevich R.I. Povysheniye effektivnosti sveklosakharnogo podkompleksa regiona na osnove marketinga vzaimodeystviya [Improving the efficiency of sugar beet subcomplex in the region on the basis of marketing interaction]// Regional economy: theory and practice. 2014. No 16. P.55-62

[17] Golodova O.A. Marketingovoe obespechenie konkurentosposobnosti promyshlennykh predpriyatiy v usloviyakh integratsionnogo vzaimodeystviya [Marketing support of industrial enterprises' competitiveness under conditions of integration cooperation]. Volgograd, VSU, 2007. 258 p.

[18] Hezrich R., Peters M. Entrepreneurship, or how to start a business and succeed. M., Progress-Universus, 1991. 159 p.

[19] Hosking A. Course of Entrepreneurship. Moscow: Mezhdunarodnye otnosheniya, 1993. 349 p.

[20] Hovell P.J. The marketing concept and corporate strategy: a will-o-the-wisp relationship? / Hovell P.J. // Management Decision, 1977. V.17 No.2. P. 157-67.

[21] Hunt S.D. On rethinking marketing: our discipline, our practice, our methods / S.D. Hunt // European Journal of Marketing. 1994. V.28. No.3. P.13-25.

[22] Kalitskaya V.V. Konkurentosposobnost prodovolstvennogo rynka v modelyakh, periodakh i fazakh ego razvitiya [Competitiveness of the food market in models, periods and phases of its development]. Yekaterinburg, USAU, 2013.17 p.

[23] Kalman R. E. A New Approach to Linear Filtering and Prediction // Transaction ASME Journal of Basic Engineering. 1960. № 86. pp. 35-45.

[24] Ketova N.P. Marketing v rynochnoy ekonomike Rossii: realizatsiya traditsionnykh kontseptsiy i videniye perspektiv razvitiya v XXI veke [Marketing in the market economy of Russia: implementation of traditional concepts and vision of development prospects in the 21st century] // The South-Russian Forum. 2012. No 1 (4). P.69-86.

[25] Kirilenko A.S. Sovremennye integratsionnye protsessy v APK [Current integration processes in AIC]. AIC: Economics, Management, 2008, No.10, pp. 21-25.

[26] Kirzner I.M. Competitiveness and Entrepreneurship. (Russ. ed.: Prof. Romanov A.N., Konkurentsiya I predprinimatelstvo, Moscow, YUNITI-DANA., 2001. 239 p.).

[27] Kleiner G.B. Mikroekonomika znaniy i konkurentosposobnost predpriyatiy [Microeconomics of knowledge and competitiveness of enterprises]. Contemporary competition. 2007. No.3. Pp. 128-131.

[28] Koladina Ye.A. Mezhotraslevaya ekonomicheskaya integratsiya: opytsistemnogo analiza [Inter-industrial economic integration: experience of system analysis]. Irkutsk, BSU, 2013. 140 p.

[29] Komkov N.I., Lazarev A.V. [Mnogourovnevaya struktura i podkhody k otsenke ekonomicheskoy kategorii 'konkurentosposobnost'] Multi-level structure and approaches to the assessment of the economic category 'competitiveness']. Problems of Forecasting. 2007. No.4. Pp. 3-19.

[30] Korshunova G.V. Strukturnye osnovy konkurentosposobnosti [Structural fundamentals of competitiveness]. Economic Analysis: Theory and Practice, 2012, No. 8, pp. 35-48.

[31] Koshurnikova Yu.Ye. Razvitie kontseptsii marketinga vzaimootnosheniy: teoreticheskiy i prikladnoy aspekt [Development of the relationship marketing concepts: theoretical and applied aspect], Fundamental research, 2013, No. 6-3, pp. 688-692.

[32] Kotler Ph. Marketing Essentials. (Russ. ed.: Bobrov V.B. Osnovy marketinga, Moscow, Rostinter, 2013, 704 p.).

[33] Krotkov AM, Eleneva Yu.Ya. Konkurentosposobnost predpriyatiya: podkhody k obespecheniyu, kriterii, metody otsenki [Competitiveness of the enterprise: approaches to collateral, criteria, evaluation methods]. Marketing in Russia and abroad. 2001. No.6. Pp. 59-68.

[34] Mansurov R.E. Kriterii otsenki konkurentosposobnosti agropromyshlennogo predpriyatiya [Criteria for assessing the competitiveness of an agro-industrial enterprise]. Bulletin of Altai State Agrarian University. 2011. No.4 (78). P.100-105.

[35] Moiseeva N.K. Marketing of interaction in conditions of intensification of scientific and technical progress (problems and opportunities) [Marketing vzaimodeystviya v usloviyakh intensifikatsii nauchno-tekhnicheskogo progressa (problemy i vozmozhnosti)]/ G.L. Bagiev, H. Meffert and others // Marketing of interaction. Concept. Strategies. Efficiency. St. Petersburg: Saint Petersburg State University of Economics 2009. P. 276-278.

[36] Neuenfeldt S. et al. Using market share and multiplicative competitive interaction models to explain structural change in the German agricultural sector / S. Neuenfeldt., N. Röder, A. Gocht, M. Espinosa, S. G. Y Paloma // No. 182955, 2014 International Congress, August 26-29, 2014, Ljubljana, Slovenia, from European Association of Agricultural Economists/

[37] Paul E. Samuelson. Monopolistic competition - revolution in theory [Electronic resource]: electron. data. M .: Scientific digital library PORTALUS.RU, December 13, 2004. Access mode: http://portalus.ru/modules/economics/rus_readme.php?subaction=showfull&id=1102953998&archive=1120044309&start_from=&ucat=& (free access). Date of access: 02/02/2018.

[38] Pezenti A. Ocherki politicheskoy ekonomii kapitalizma [Essays on the Political Economy of Capitalism]. M., Progress, 1976. Vol. 1. 840 p.

[39] Pezenti A. Ocherki politicheskoy ekonomii kapitalizma]Essays on the Political Economy of Capitalism]. M., Progress, 1976. Vol. 2. 885 p.

[40] Popova Yu.F. Setevoy podkhod v marketinge [Network approach in marketing] / G.L. Bagiev, H. Meffert and others // Marketing of interaction. Concept. Strategies. Efficiency. St. Petersburg: Saint Petersburg State University of Economics 2009. P. 276-278.

[41] Porter M. Competitive strategy: The analysis of industries and competitors / Michael Porter. Moscow: Alpina, 2011. 453 p.

[42] Porter, M. International competition: Competitor. advantages of countries: Moscow: Mezhdunarodnye otnosheniya, 1993. 895 p.

[43] RichardL. Kohls, Uhl. JosephN. Marketing of Agricultural Products (Russ. ed.: Dolgopolova V.G. Marketing selskokhozyaystvennoy produktsii, Moscow, Kolos, 2000. 512 p.).

[44] Sadovskaya T.G. et al. Primeneniye matematicheskikh metodov i modeley v upravlenii organizatsionno-ekonomicheskimi faktorami konkurentosposobnosti promyshlennogo predpriyatiya [The application of mathematical methods and models in the management of organizational and economic factors of the competitiveness of an industrial enterprise] / T.G. Sadovskaya, P.A. Drogovoz, V.A. Dadonov, V.I. Melnikov // Audit and financial analysis. 2009. No.3. P.364-379.

[45] Smith A. A Study on the Nature and Causes of the Wealth of Nations. M.: Eksmo, 2005. 960 p.

[46] Taştan, S.B., Davoudi, S.M.M., Masalimova, A.R., Bersanov, A.S., Kurbanov, R.A., Boiarchuk, A.V., Pavlushin, A.A.(2018). The Impacts of Teacher's Efficacy and Motivation on Student's Academic Achievement in Science Education among Secondary and High School Students, EURASIA Journal of Mathematics Science and Technology Education, 14(6), 2353-2366.

[47] Thorelli H. Networks: between markets and hierarchies // Strategic Management Journal 1986. V.6: P.37-51.

[48] Tretyak O.A. Marketing vzaimodeystviya i partnerskikh vzaimootnosheniy: novyye napravleniya issledovaniy i instrumentariy [Marketing of interaction and partnerships: new directions of research

and tools] Russian Journal of Management. 2008. No.2. Pp. 132-133.
[49] Ushachev I.G. Strategic directions of AIC development in Russia under conditions of regional integration and globalization. Agrarnaya politika Rossii v usloviyakh mezhdunarodnoy i regionalnoy integratsii: Trudy mezhdunarodnoy NPK, posvyashchennoy 85-letiyu VNIIESKh [Agricultural policy of Russia under conditions of international and regional integration: Proceedings of the international research conference dedicated to 85th anniversary of All-Russian Scientific Research Institute of the Economy of Agriculture] 2015, 442p.
[50] Vasilyeva Z.A. Ierarkhiya ponyatiy konkurentosposobnosti subektov rynka [Hierarchy of the market subjects' competitiveness concepts]. Marketing in Russia and abroad, 2006, No. 2, pp. 83-89.
[51] VI Bogachev, VG Penner, OV. Bundukov, KV Kravchenko. Organizatsiya i upravleniye NTP v regione v usloviyakh globalizatsii ekonomiki [Organization and management of scientific and technical progress in the region in the context of economic globalization]. Lugansk - Rovenky: Nauka, 2009. 260 p.
[52] Vorst J., Reventlow P. The economics of the firm: a textbook. M: Vyshaya Shkola, 1994. 272 p.
[53] Waterman R. The renewal factor: How the best companies retain their competitiveness. M.: Progress, 1988. 362 p.
[54] Yemelyanov A.M. Agrarnye riski vstupleniya Rossii v VTO, ikh ekonomicheskie i politicheskie istoki. Agroprodovolstvennaya politika i vstuplenie Rossii v VTO [Agrarian risks of Russia's accession to the WTO, their economic and political grounds. Agri-food policy and Russia's accession to the WTO]. Moscow, RAAS Publ., 2003. pp. 24-27.
[55] Zavyalov P.S. Konkurentosposobnost i marketing [Competitiveness and marketing] // Russian economic journal. 1995. No.12. P.55.
[56] Zhemukhov A.Kh. Otsenka konkurentosposobnosti agropromyshlennogo proizvodstva [Assessment of competitiveness of agro-industrial production]. Economics of agricultural and processing enterprises, 2011, No. 7, pp.30-34.