Business Mechanism for Agricultural Production Sustainable Development Management

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Abstract. In the furtherance of national targets in support of sustainable development of Russian territories, the most important is the issue of quality life region competitiveness improvement. The preference in the solution of regional economy efficiency improvement is given to the agricultural sector. The consideration of balanced agricultural production development issues is a fresh research direction. In the plane of available global economy tools and the drive for new technological context this issue requires the attention from the point of innovation development of the studied economic system. In order to solve issues on enabling of harmonious development, it seems necessary to consider and substantiate principles and factors for formation of self-regulated agricultural sector. In the scope of this paper will be represented the complex of related components on the formation of effective business mechanism for agriculture development. Introduced principles on the basis of significance, cooperation and functioning attributes. Developed the summary index of agriculture development impact factors. The scientific novelty of the study is in the development of integrative mechanism for management of balanced innovative development of agricultural sphere on the basis of self-organization of production and economic systems; main components of which are economic, organizational, motivational and informational sub-mechanisms. The study results could be interesting for representatives from academia on the agro-industrial complex development issues and regional governmental authorities in order to design the country territories' development strategy.

1 Introduction

In order to support the effective development of agricultural production the mechanism providing the establishment of efficient and stable interrelations between members of the economic system is required. The implementation of this direction is possible due to the creation of business mechanism of balanced agricultural production development that will ensure the accomplishment of tasks as follows:

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- The determination of main objectives, principles of the effective agricultural production management mechanism;
- The identification of objective conditions affecting all stages of business relations’ formation between agro-industrial complex agents;
- The clarification of method and criteria system, the effective agricultural production management tools;
- The development of the system of balanced development provisions for assessment of proposed measures’ results.

The works of domestic scientists on the solution of multiple issues of agro-industrial complex economic agents’ development and the activation of innovative processes, namely: S. Glazyev [1], L. Gokhberg [2], I. Zaripov [3], M. Kozlov [4] , N. Kondratyev [5], B. Kuzyk [6], B. Porfiriev [7], V. Fedorenko [8], I. Khitskov [9,10], etc. are of the prime importance. Despite of strong interest in this issue, modern economic studies undercharacterize the issue of balanced development of agricultural production peeping up-to-date the subject, the selection of subject, object, objectives and tasks of this paper.

In order to ensure the balanced development of economic systems the number of guiding principles shall be fulfilled. Considering the key economy drivers and territorial structures’ development features, it presents important to divide them into base, regional and level (Table 1).

The framework for system of balanced development principles are the provisions formed in relations between the society and the nature occurring in the process of collaborative decision making, interrelations of agents and the economy functioning.

The base principles rely upon the flexibility of application to any economic system. The regional principles allow to achieve the certain system status on the local unit level. The provided classification of principles is guiding for the formation of the balanced region development management mechanism.

Table 1. Principle of agricultural production

Significance principles	Cooperation principles	Functioning principles
Base balance principles		
Spatiality principle	Equilibrium principle	Principle of equivalent development
Homeostasis principle	Balancing principle	Functional integration principle
Principle of unity and integrity	Globalisation principle	Globality principle
Distribution principle	Dynamism principle	Rationality principle (ecofriendly is economically)
Continuity principle	Feedback principle	Scientific development principle
Reproduction principle	Consistency principle	Informativeness principle
Principle of satisfaction of fundamentally new need	Responsibility principle	Comprehensive principle

Continuation of Table 1. Principle of agricultural production

Regional principles of balanced development		
System openness principle	Adaptation principle	Principle of equivalent regional development
Area classification (zoning) principle	Principle of equitable relations	Innovation principle
Territory alignment principle	Principle of rational nature management	Sustainable economic development principle
Principle of rural goods producers' welfare security	Competitive rationality principle	Social development principle
Logistics principle	Principle of cooperation with organization forming the region economy	Statistical and demographic development principle
Principle of social differentiation reduction	Cluster organization principle	Principle of material waste cyclicity
Level principles of balanced development		
Purposiveness principle	Principle of fiscal balance	Efficiency principle
Freedom of choice principle	Freedom of choice principle	Innovative balance principle
Principle of agent equality	Management efficiency principle	Principle of optimality
Principle of independence	Financial incentive principle	Self-organization principle
Resource availability principle	Principle of consistency and systematicity	Net production principle
Principle of innovative activity priority	Integrity principle	Principle of production factors' development consistency

However, considering the particular development of different economic sectors, it is required to introduce additional level principles reflecting internal features of manufacturing processes of different economic sectors.

2 Materials and Methods

Within the conditions of economy digitalization issues of the information base extension in order to increase organization management efficiency become actual [11]. The major number of companies operating on both domestic and foreign markets uses as the main criteria the set of financial parameters as the tool for outcome assessment. The existing criteria system is not able to fully and reliably assess cause and effect relationships of company development in the interrelation with the long-term objectives. The international

academia designates research approaches for the sustainable development level of regional systems; however, the majority of studies are based on the consideration of regional economic system in general; in terms of the agricultural production the study is fragmentary and requires more focused research in terms of such economic sector.

The approach complexity in determination of management mechanism efficiency is grounded on the search of methodological approaches based on two directions. The first direction is the search of summarizing cost indicator reflecting the quantitative side of financial and business activities of agricultural sector and its contribution to the region economy.

Fig. 15. Business Mechanism for Balanced Innovative Agricultural Production Development

The second approach is based on the application of heuristic techniques for determination of consumer preference coefficient, including data of expert groups, questioning of target groups, collection of state statistics authorities’ official data.

$$\mathfrak{D}^B = K_d * \frac{\sum_{i=1}^n \mathfrak{D}k_i}{n},$$

Where: K_d — Population Confidence Index obtained using heuristic method (Fig. 2).

Preliminary studies allowed to determine this index at 0.42 for 2019 will be underlaid at the analysis of conditions affecting the agricultural cluster management efficiency [9]. The information source for the index determination are working groups on region social and economic development study, state statistics authorities.

The economic index criteria included: $\mathfrak{D}k$ 1– agricultural production structure in the Gross Regional Product, %; $\mathfrak{D}k$ 2 _ value of manufactured food products to average value of this index nationwide, %; $\mathfrak{D}k3$ _ percentage of economically active population engaged in agricultural production to the total number of working population nationwide, %; $\mathfrak{D}k$ 4– number of implemented innovation to total output; $\mathfrak{D}k5$ – return on investment.

3 Results and Discussion

The agricultural production is affected by multiple factors. Considering the velocity of international and interregional relationship development, it seems advisable to determine the impact of transport and construction infrastructure on formation of the effective regional economy and the agro-industrial complex (Fig. 1).

Fig. 1. Contribution of transport and construction infrastructure in agricultural production development, 2019

Where: ЦФО – Central Federal District; СЗФО - Northwest Federal District; ЮФО - Southern Federal District; СКФО - North Caucasian Federal District; ПФО- Volga Federal District; УФО - Ural Federal District; СФО - Siberian Federal District; ДФО - Far Eastern Federal District.

A huge contribution in the regional development is made by the Central Federal District, less impact has the Northwest Federal District, the Southern Federal District, the Volga Federal District. The least impact has: the Southern Federal District, the Ural Federal District, the Siberian Federal District, the Far Eastern Federal District

Analysing modern trends of agriculture development, the growth dynamics by key indices is observed (Table 2). The effective development of agricultural production along with the growth shall be ensured by the balanced change of key performance criteria. The fulfillment of this condition includes the observance of environmental security standards, the maximum return on inward investments.

Table 2. Key agricultural business development indices in regions of the Russian Federation

	Agricultural products, bn RUB (prior to 1998 – tn RUB)	Fixed investments in agriculture, bn RUB	Stationary source air pollutant emissions, ths.t.
2008	2354.5	399.7	33952
2009	2390.1	325.2	32754
2010	2462.2	303.8	32353
2011	3098.7	446.9	32628
2012	3160.3	476.4	32469
2013	3458.3	516.6	32063
2014	4031.1	510.3	31228
2015	4794.6	505.8	31269
2016	5112.3	605.8	31617
2017	5109.5	651.4	32068
2018	5348.8	707.3	32327
2019	5908.0	746.6	22735

The line of research provides not only the consideration of interrelation of nature, society and agricultural sector but the territorial attributes of their dynamic development in the following directions: “development”, “efficiency”, “productivity”. In addition, the conditions of economic and social, political and environmental factors affecting the agricultural production.

4 Conclusions

Considering the substantive part of the business mechanism, researchers basically reveal it from the position of impact factor combination on managed objects. By clarifying the mechanism structure, it is required to focus on the subject, the sphere of economic agent business activity. This paper on the example of Business Mechanism for Balanced Innovative Agricultural Production Development has shown the possibility of stable business development of agricultural industry in the economic system.

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