THEORY AND PRACTICE OF PLANNED-MARKET APPROACH TO THE DEVELOPMENT OF REGIONAL DAIRY-GROCERY SUBCOMPLEX

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ABSTRACT

Current scientific research contains evidence-based suggestions and practical recommendations on developing planned-market approach to the development of dairy-grocery subcomplex in the Krasnoyarsk Territory. The authors reviewed the fundamental principles of state regulation in development of dairy-grocery subcomplex on the basis of planned-market approach, generalized the concept of state management of the dairy-grocery subcomplex extension, and studied distribution and specialization in the dairy-grocery subcomplex in the Territory. Effective management of the economy in the agricultural sector is impossible without the use of plan based evaluation methods to determine the line of future activities, design possible changes in the market and other spheres of activity. In this regard the authors proved the mechanism of providing comprehensive support for the development of the subcomplex and proposed the methodology of subsidizing milk production based on recoupment of expenses owing to productive efficiency with due account for the level of reproduction. The proposed mechanism will provide an opportunity for agricultural producers and the state to plan a phased increase in the productive efficiency of livestock and the quality of milk produced. The consolidation of state support measures in milk production and provision of subsidies aimed at increasing milk production in the region laid the basis to estimate projected development of dairy-grocery subcomplex in Krasnoyarsk Territory with due consideration of the implementation of the proposed recommendations for the period of 2017-2022.

Keywords: the Krasnoyarsk Territory, dairy-grocery subcomplex, planned-market approach, subsidization, recoupment of expenses.

INTRODUCTION

Currently, milk and dairy products market is one of the most developing and promising areas of agricultural production. The country's food security, population's health and quality of life are largely dependent on the development of milk production and processing based on innovative development in the dairy industry, preserving natural resources, livestock, and employment policies of the rural population. Russia has all the things needed for the development of dairy-grocery subcomplex including farmland, material and technical base, as well as scientific and human resources [6].

However, the Russian Federation and, in particular, the Krasnoyarsk Territory are not provided with the milk consumption at a level corresponding to medical standards (just 78%). At that, livestock population is reduced annually, the proportion of milk and dairy products imports increases, while state support reduces, and the profitability of the industry decreases [13]. Modern state regulation of dairy industry aims at subsidizing the production of 1 kg of milk, or part of the lending interest rate on investment loans. This approach, focused primarily on the market mechanism, does not provide the necessary conditions for strategic development of the industry [8]. This is possible only through the formation of planned-market development mechanism of dairy-grocery subcomplex of the region, where the achievement of necessary production and consumption levels are defined and provided by the state.

In this regard, elaborating issues related to development prospects of dairy-grocery subcomplex becomes quite urgent. This involves the use of planned-market mechanism, focused on state encouragement of production, processing, and consumption of milk and dairy products within the given parameters based on the use of innovative technologies.

In Russian economic science, the theoretical basis for the development of dairy-grocery subcomplex in market conditions is in a formative stage. Theoretical and methodological issues related to the formation of planned-market development mechanism of subcomplexes of the agricultural sector of the region and transition of agricultural organizations to the planned-market economy still remain unresolved. The present thesis research is focused on forming scientific approaches addressed the issues raised.

A significant contribution to the study of the current status and issues of state support of agriculture, and particularly, milk production, has been made by such prominent scientists as Altukhov A.I., Baryshnikov N.G., Bespakhotny, G.V., Veklenko V., Goncharov V., Nechaev, V. I., Semin A.N., Serkov A.F., Tkach A.V., and Ushachev I.G.. Their works served the scientific basis for current research [7, 9, 10, 12, 16-19].

METHODOLOGY

The aim of the present study is the development of theoretical provisions and practical recommendations for planned-market approach to the development of regional dairy-grocery subcomplex.The target of the research included economic and organizational-managerial relations arising in the course of development of dairy-grocery subcomplex.The object under observation included agricultural organizations in the region, specializing in milking herd operations. The research was carried out using the abstract-logical, monographic, economic-statistical, and calculation-constructive methods. By applying the abstract-logical method, we formulated the fundamental principles of state regulation of dairy-grocery subcomplex development based on planned-market approach, which are the basis for the functioning of the entire system of state regulation of industries and subcomplexes in agricultural sector.

Using the statistical research method we revealed the dynamics of the main indicators characterizing the development of milking herd breeding branch in the Krasnoyarsk Territory, as well as production and processing organizations siting and specialization. Based on the developed economic-statistical models, we determined milk yields, providing a recoupment of expenses in the context of climatic zones.The monographic method of research was used to substantiate the need for providing comprehensive subsidy for milk production development in the region.The application of the calculation-constructive method allowed determining the dairy-

grocery subcomplex growth prospects in the Krasnoyarsk Territory based on the proposed milk production subsidizing methodology.

RESULTS

1. The authors clarify the fundamental principles of state regulation of dairy-grocery subcomplex development based on planned-market approach, which, as suggested by the authors, includes the following principles: development according to plan, subsidiarity, providing mono-subsidy, innovativeness, sufficiency of domestic products, priority of natural quality, parity income for producers, processors and distributive trade, and recoupment of expenses owing to productive efficiency. These principles should lay the basis of state regulation of dairy-grocery subcomplex in the framework of planned-market approach.

2. In terms of developed economic and statistical models the authors have revealed that the total costs to maintain dairy herds are justified at milk yields ranging from 2000 to 5200 kg/head, while the maximum rate of recoupment of production costs is achieved at productive efficiency ranging from 5500 to 8000 kg/head depending on the climatic zone. These levels are proposed as targets for state support. The efficiency of milk production at higher levels is reduced due to significant increase in the cost of milk production.

3. The authors propose methodology for the provision of state support to agricultural organizations in the region, which is giving mono-subsidy depending on the planned productive efficiency and level of reproduction. These measures will enable the agricultural producers and the state to plan for a phased increase of livestock productive efficiency and milk quality. This mechanism will allow agricultural enterprises of the region to achieve yields in the amount of 7560 kg/head by 2022, and produce in total 340 kg of milk per statistically average inhabitant of the region.

DISCUSSION

4.1The state regulation principles in development of dairy-grocery subcomplex

Currently, the leading scientists working on the development of agriculture are increasingly turning to lap experience of former top-down (planned) approach in economy development. Planned economy, emerged in 1917, gave great results, however gaining great impetus, deprived the producers of independence and initiative, hindering the stimulation of production growth. At that, directivity, targeting, and urgency were the basic principles of the planned approach [7].

The main principle of the modern market economy, along with the diversity and the use of advanced technologies, is nonintervention of the state. At that, the state's participation in the development of industries and subcomplexes in agricultural sector is primarily compensatory in nature and implemented through subsidies for reimbursement of part of production costs and interest rates on loans depending on the budgetary opportunities. This largely determines the inertia of the industry that is unacceptable in modern conditions when solving the problem of ensuring food security of the state [17, 19].

According to the authors, the formation of the planned-market approach to the development of industries and subcomplexes in agricultural sector will contribute to overcome the inertial development of agriculture. This approach, as suggested by the authors, should be

understood as the combination of market principles of management and elements of state involvement that should consist in making available planned production volumes or a certain rate of their growth to particular producer in order to ensure food security of the state. This involves reimbursement of part of expenses through the provision of consolidated support to ensure the orderly development of production and its profitability.

Based on the principles of agricultural production development at the present stage, we have specified the following fundamental principles of state regulation of dairy-grocery subcomplex development based on planned-market approach:

The principle of planning Involves a combination of market independence of economic entities in the definition of product volumes and types, as well as state regulation to ensure certain volumes of production based on production planning and bringing state order to specific producer, ensuring a certain level of profitability following on from the public needs and food security of the state.

The principle of subsidiarity suggests that development plans should be drawn up for each agricultural enterprise given the challenges facing at all levels of agricultural sector management.

The principle of providing mono-subsidy consists in consolidation of support measures into a single support amount (per 1 kg or 1 hectare) that will increase the amount of direct support, as well as enhance the efficiency of the use of budgetary funds, since economic entities will independently determine the direction of spending of funds in order to fulfill the state order.

The principle of innovativeness consists in encouragement of producers to use in the agro-industrial complex technical, technological, organizational, information and communication innovations while achieving planned performances and ensuring a certain level of profitability.

The principle of sufficiency of domestic production means that the total of output produced by Russian agricultural producers must be sufficient to meet the needs of consumers and end processors.

The principle of priority of the natural quality means that when supporting production, the state must give preference to high-quality products manufacturers as well as processors, which use natural raw materials (without nutritional supplements) in the manufacture of their products.

The principle of parity income of producers, processors and distributive trade means that the government should take measures to regulate producers' prices as well as marketing margins of processors and distributive trade on socially significant products.

The principle of recoupment of expenses through productive efficiency means that providing support should ensure the profitability of producers at a level ensuring the expanded reproduction (30% or more) to cover all production costs of gross output, its processing and distribution.

4.2. The concept of state development management of the of dairy-grocery subcomplex

Because of inherent versatility, significance, and complexity, the dairy-grocery subcomplex needs to be developed further based on scientifically grounded concept. In the framework of the planned-market approach, the main tool to develop the concept should be a system of different level plans tailored taking into account the accumulated experience and identified shortcomings in the development of the subcomplex [18]. Based upon generalization of challenges facing milk producers and processors, we elaborated a system of concepts to define the purpose and tasks of

further development of dairy-grocery subcomplex with due consideration of the fundamental principle of plannin (Fig. 1).

Figure 1
THE CONCEPT OF STATE DEVELOPMENT MANAGEMENT OF THEDAIRY-GROCERY SUBCOMPLEX

The main problems in the development of the dairy product subcomplex

The low level of breeding	Weak fodder base	Low level of mechanization, dependence on foreign equipment	Low innovation and investment activity	Lack of developed infrastructure in rural areas and affordable housing	Low wages and as a consequence weak motivation to work and retention of personnel	Low quality of milk, lack of independent laboratories	Inefficient pricing	Weak state support and lack of state control	Decreased consumption of milk and dairy products

Implementation of the planned-market approach

The goal: to achieve intensive development of the subcomplex, guaranteeing self-sufficiency in milk and dairy products, efficiency and competitiveness

Tasks

Forming domestic market for productive livestock	Modernizing and strengthening material and technical base	Attracting young specialists to the industry and providing them social support	Encouraging milk and dairy products consumption

In the conditions of free competition, agriculture is unable to have returns comparable to profitability from investments in other sectors; besides, the agricultural sector has a low turnover of funds, etc. All this indicates the necessity of state development regulation of agriculture. At the same time, effective management is impossible without the use of planned methods which allow determining the line of future activities, designing possible changes in the market and other spheres of activity. The key document of planned policy, which establishes forecast guidelines for the development of agriculture in the region is the Decrees of the Russian Federation Government "State Program for Development of Agriculture and Regulation of Agricultural Commodities Markets in 2013-2020" and the long-term target program "Development of Agriculture and Regulation of Agricultural Commodities Markets in the Krasnoyarsk Territory" for 2013-2020 [15].

Table 1
THE RESULTS ACHIEVED IN SOCIO-ECONOMIC DEVELOPMENT OF THE KRASNOYARSK TERRITORY IN 2014

Indicator	2013	2014		
		planned	actual	variance
Index of agricultural production (in comparable prices), %	100.5	101.6	97.7	-3.9
including:				
- crop raising	104.5	100.2	99.5	-0.7
- cattle raising	97.2	102.9	96.0	-6.9
Population of cows in farms of all categories, thousand animals	168.5	175.0	168.6	-6.4
Milk production in farms of all categories, thousand tons	708.1	734.8	724.5	-10.3
The proportion of regional production of milk and dairy products in total volume, %	76.6	85.6	94.4	+8.8
The consumption of milk and dairy products, kg/person/year	249	253	250	-3.0
Average monthly nominal accrued wages of workers employed in agriculture, rubles	14720	15761	15847	+86
Average monthly nominal accrued wages of employees at enterprises of food and processing industry, rubles	19483	20820	19872	-948
The total program funding from the regional budget, mln rubles	1738.7	2300.0	1399.4	-900.6
The cost effectiveness of agricultural organizations, %	14.1	15.0	14.7	-0.3

* according to the collections "Agro-industrial complex of the Krasnoyarsk Territory in 2009-2014" [1-5]

Parameters specified in the program are abstract since they do not serve as a guide to action for a particular agricultural enterprise (Table 1).

The region is characterized by non-fulfillment of some program indicators for a number of parameters that may be due to overestimation of the forecasted targets or insufficient resources. It can also be noted that indicators lack such parameters as the price of agricultural products and products of industrial production, used in agricultural sector, the level of lending interest rates, etc. In turn, these parameters determine development conditions of agricultural production.

In modern conditions, organizational and economic essence of planning must be manifested in the form of management, which is the definition of the parameters and measures that contribute to achieving the goals set for a specific period. At that, the planning should be advisory in nature and be implemented at all decision-making levels, taking into account the interaction between them. During the transition to the planned-market approach, planning is combined with self-regulation. Here the independence of agricultural producer in the choice of its development course and the definition of the proper planned targets serve as the main basis. We espouse the view of some researchers that the economic processes in agriculture are more evolutionary in nature [9, 10]. This is due to the fact that agriculture is traditional and

conservative industry, which is based on labor and psychology of workers. Therefore, the forecasting the development of dairy-grocery subcomplex should be focused on the strategic development of the industry in the context of qualitative and quantitative parameters, while planning should include a system of plans tactical in nature (Fig. 2).

Figure 2
FORECASTING AND PLANNING IN THE DAIRY-GROCERY SUBCOMPLEX

Forecasting	
Qualitative forecasts: economic relations labor relations social relations managerial relations	Quantitative forecasts: production processing distribution consumption economic and financial indicators
System of plans	
herd reproduction plan costs forecast resources' provision plan financial support plan siting and specialization plan production plan product processing plan implementation and consumption plan innovation implementation plan	

In terms of milk production, in the rating of constituent entities of the Siberian Federal District, the Krasnoyarsk Territory takes the second place. The average number of cows in the region during the period from 2004 to 2014 was reduced by15.7%. Despite this, milk production has increased by 10.1% due to the growth in productive efficiency of milking herd by 37.3%. All this testifies the transition to the competitive enhancement of milking herd breeding.

4.3. Siting and specialization in the dairy-grocery subcomplex of the Krasnoyarsk Territory

Rational siting is an important factor for effective planning of productive efficiency and production in milking herd operations. Milk production covers almost the whole Krasnoyarsk Territory. Milk production in the region takes place in all climatic zones (Eastern, Western, Central, Southern, and Northern) by agricultural organizations, family-operated farms, and peasant (farmer) holdings.

Traditionally, leading role in the milk production is occupied by agricultural organizations. Although the private farms in the Territory account for 48.4% of total milk produced, agricultural organizations serve the basis for existence and development of small farms. Due to the vast extent of territory from north to south, the uneven distribution of the population, and the predominance of urban population, the level of specialization in the context of climatic zones, taking into account various factors, is significantly different. Cow population and milk production is concentrated mainly in three climatic zones: Eastern, Western, and Southern (Table 2). The provision of milk in these zones exceeds the level of medical standards, and specialization ratio here is greater than 1. A large proportion of the population, namely

48.4% resides in the Central zone. Therefore, per capita milk production in this zone is minimal. The agriculture in the Northern zone of the region is less developed that is primarily due to the climatic conditions.

In each of the three zones leading in the production of milk, we can select areas that combine advanced agricultural organizations, specializing in the milk production. Approximately 50% of the milk produced in the region mainly by agricultural organizations, is processed by milk processing plants predominantly into whole-milk products such as curd and cream cheese products, processed liquid milk, sour cream and liquid creamers, and fermented-milk products. Thus, in 2014, the Krasnoyarsk Territory has produced 329.4 thousand tons of whole-milk products (recalculated to milk), 4.1 thousand tons of cheese and curd, and 3.3 thousand tons of butter. At that, the greater

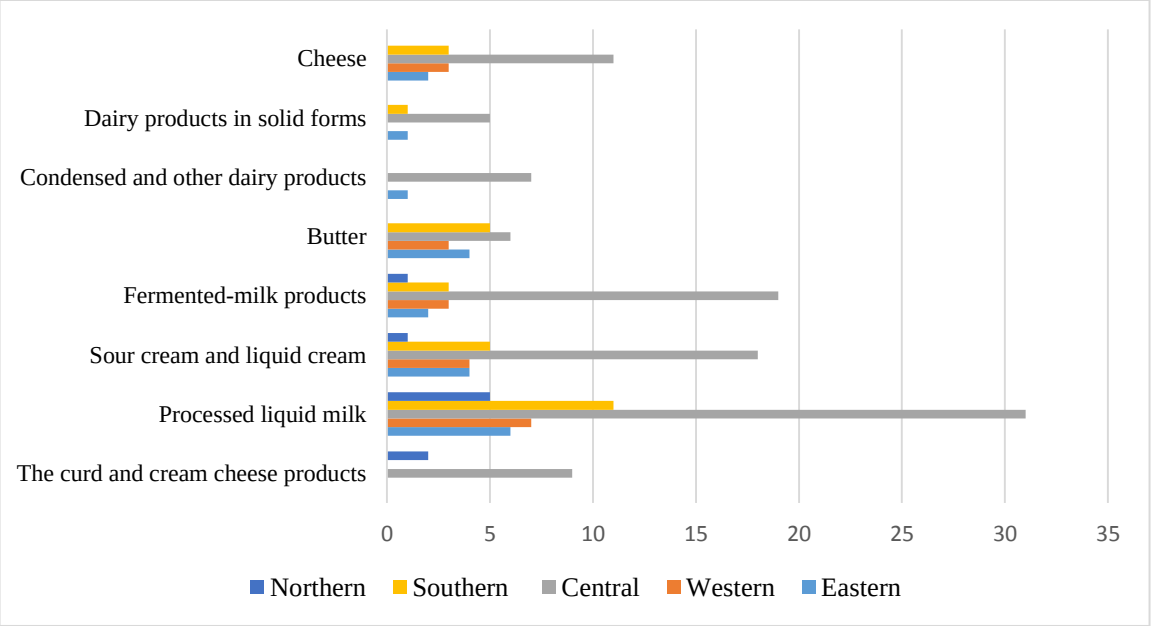
Table 2
SITING OF MILK PRODUCTION IN THE VARIOUS CLIMATIC ZONES OF KRASNOYARSK TERRITORY IN 2014

Indicator	Zone					Total in the Territory
	Eastern	Western	Central	Southern	Northern	
The annual average number of cows, thousand heads	43.4	49.0	24.0	42.5	9.7	168.6
Percentage in terms of annual average livestock, %	25.7	29.1	14.2	25.2	5.8	100
Total milk production, thousand tons	194.6	206.4	106.0	180.9	36.6	724.5
Percentage in terms of gross output, %	26.9	28.5	14.6	25.0	5.0	100
Dairy cows productive efficiency, kg/head	4633.8	4362.2	4566.7	4406.5	3780.0	4446
including in the agricultural organizations, kg/head	**5073**	**4883**	**4443**	**4757**	**3172**	**4813**
Per capita production of milk, kg	500.9	533.0	76.6	762.7	79.3	253.4
Percentage of the Territory's population, %	14.4	14.3	48.4	8.3	14.6	100
Specialization ratio	1.98	2.10	0.30	3.01	0.31	1.00

***** according to the collections "Agro-industrial complex of the Krasnoyarsk Territory in 2009-2014" [1-5]

part of the milk produced in the region is processed in milk processing plants located in the Central zone (Fig. 3). Primarily, this is "Milko" dairy plant and "Wimm-bill-Dann" OJSC, which account for 70% of milk processing in the region.

Figure 3
THE NUMBER OF ORGANIZATIONS PRODUCING DAIRY PRODUCTS IN VARIOUS NATURAL-CLIMATIC ZONES OF THE KRASNOYARSK TERRITORY.



The principle of ensuring the recoupment of costs through productive efficiency, stated earlier, should have a great importance in the siting of milk production. In order to identify the levels of yields providing a payback of costs for dairy herd management, we carried out correlation and regression analysis for five zones for 2014. As a result we have obtained five regression equations:

Eastern zone

$$y=0.138689305+0.000464978x_1-0.0000000441808(x_1)^2-2.178106628x_2+2.129037307(x_2)^2+0.0714561x_3-0.006358141(x_3)^2 \quad (1)$$

Western zone

$$y=1.588034701-0.0000341423x_1+0.00000000814655(x_1)^2+3.718435141x_2-1.068747982(x_2)^2+0.068550776x_3-0.005744166(x_3)^2 \quad (2)$$

Central zone

$$y=-1.799915809-0.000341702x_1+0.00000000814655(x_1)^2+6.56307376x_2-0.0000000233337(x_2)^2-0.104936482x_3+ +0.005582712(x_3)^2 \quad (3)$$

Southern zone

$$y=2.067935117+0.0000619206x_1-0.00000000690666(x_1)^2-4.429986641x_2+3.4009971(x_2)^2+0.003846429x_3+ +0.000982013(x_3)^2 \quad (4)$$

Northern zone

$$y=17.6359996-0.000688453x_1+0.000000119504(x_1)^2-39.53491921x_2+23.67724121(x_2)^2-0.037196617x_3++0.014885915(x_3)^2 \quad (5)$$

where y_2 is the recoupment of expenses, x_1 is the annual average yield of milk per 1 cow, x_2 is the level of marketability of milk, x_3 is the number of milking herd per 100 ha of agricultural land.

Using these equations, we identified the parameters which are needed to be guided in the development of the industry (Table 3).

Table 3
PARAMETERS OF DAIRY-GROCERY SUBCOMPLEX DEVELOPMENT IN THE KRASNOYARSK TERRITORYTAKING INTO ACCOUNT THE RECOUPMENT OF EXPENSES ON MILK PRODUCTION BY INCREASING PRODUCTIVE EFFICIENCY OF COWS

Indicator	Natural and climatic zone				
	Eastern	Western	Central	Southern	Northern
Annual average productive efficiency ensuring the recoupment of expenses, kg/head	3000	2000	2800	2300	5200
The ratio of the maximum possible parameters:					
- annual average productive efficiency, kg/head	**5500**	**8000**	**8000**	**6000**	**5500**
- recoupment of expenses	1.21	1.30	1.47	1.21	1.18
Planned milk production, thousand tons	230	350	180	240	52

Due to the fact that the level of milk production in the region does not meet the needs of the population in terms of medical standards, in our opinion, it is necessary to increase milk production. The group analysis has revealed that in every zone there are organizations, which allow increasing production output. Due to the reduction in the number of agricultural organizations from year to year, we have determined the maximum possible milk production in the region by increasing its overall production exactly in such organizations.

4.4. Milk production subsidizing methodology

To achieve the development parameters of the industry, it is necessary to review the subsidizing methodology of milk production and processing in the region, using planned-market approach. In 2014, in the structure of state funding of the livestock industry, subsidies for co-financing of expenditure commitments of constituent entities of the Russian Federation, related to the reimbursement of part of expenses of agricultural producers per 1 liter (kg) of sold milk, amounted to 19%. At that, the terms for providing state support include the follows [11]:

1. Inclusion of regional entities of agribusiness complex applying for state support into the register.

2. Availability of concluded agreement with the regional Ministry of Agriculture on providing state support and the execution of this agreement.

3. The absence of ongoing bankruptcy and liquidation procedures with regard to the applicant in accordance with applicable law.

4. Preservation of cow population in the reporting period in comparison with the population as of January 1 of the previous year or January 1 of the current year in the event that the own cattle population as of January 1 of the previous year was absent (this requirement does not apply in case of the reduction in own livestock encountered in emergency situations associated with natural disasters and epizootics of cattle).

5. Ensuring the productive efficiency of dairy cows during the previous year not less than 2400 kg or more per forage-fed cow (the requirement does not apply to peasant (farmer) farms and individual entrepreneurs having status of agricultural producers).

6. Conducting study of prepared fodder quality and nutritional value before December 1 of the previous year (the requirement does not apply to peasant (farmer) farms and individual entrepreneurs having status of agricultural producers)

7. The availability of specialists with higher or secondary zootechnical or veterinary education.

8. Payroll payment within the terms established by internal regulations, collective agreement or employment contract (the requirement does not apply to peasant (farmer) farms and individual entrepreneurs having status of agricultural producers).

9. Ensuring the quality of sold milk at a level not less than the first grade.

Table 4
THE RELATIONSHIP BETWEEN COSTS AND PRODUCTIVE EFFICIENCY IN DAIRY FARMING OF THE REGION

Type of reproduction	Productive efficiency, kg/head	Number of organizations in the group	Weighted-average costs for the dairy herd management, thousand rubles	Weighted-average costs for increase in productive efficiency in 500 kg/head, thousand rubles	Recoupment of production costs
Simple	below 2000	3	5943.3	2915.0	0.8
	2000-2500	11	10115.0	4171.7	0.9
	2500-3000	14	17047.8	6932.8	0.94
	3000-3500	20	26106.9	9059.1	1.00
Extended	3500-4000	7	31784.3	5677.4	1.12
	4500-4000	21	55030.5	23246.2	1.14
	4500-5000	10	66057.8	11027.3	1.15
	5000-5500	9	103383	37325.2	1.15
Innovative	5500-6000	9	139729	36346	1.19
	6000-6500	6	150725	10996	1.33
	6500-7000	2	224256	73531	1.70
	over 7000	2	248722.8	24466.8	1.30

Also, since 2011, subsidies from the regional budget are provided depending on natural climatic conditions.

Diverse courses of agriculture development [20] indicated in the federal law "On development of agriculture" contributed to the emergence of various support measures. This in turn helps to reduce the amount of direct subsidies that complicates the objectivity of assessing the level of subsidization. In addition, a large number of support areas leads to increased paperwork, while the lack of support for organizations with low productive efficiency does not contribute to efficiency increase in the agricultural sector. Therefore, we propose to consolidate

support measures for agricultural producers by providing systematically planned support, which is a single amount of support to dairy producers determined in accordance with the planned indicators of the sector. It is expected to consolidate the following measures into a single amount of support for milk production in the region: subsidies for co-financing of expenditure commitments of constituent entities of the Russian Federation related to the reimbursement of part of expenses of agricultural producers per 1 liter (kg) of sold milk; subsidies to support livestock breeding; subsidies to support livestock products; subsidies to support the delivery of seeds for cultivation of fodder crops in the Far North and equivalent areas, including crop production on low-yielding lands; subsidies to co-financeexpenditure commitments of constituent entities of the Russian Federation related to compensation of part of the lending interest rate on short-term credits (loans) on the development, processing, and distribution.

In modern conditions, the development of dairy-grocery subcomplex should occur through stepped-up pace, i.e. the gross yield should be increased while preserving the number of cows. This
can be achieved through high productive efficiency. To identify milking herd productive efficiency and its growth depending on the costs we carried out the following grouping (Table 4).

We have revealed direct dependence between the level of milk yields and costs of agricultural organizations for the milking herd management. Summarizing the obtained results, the authors proposed to improve the efficiency of shelf-grocery subcomplex by providing subsidies to all milk producers in the form of comprehensive support to increase productive efficiency. The following formula was proposed to calculate the subsidies that provide gains in milk yields:

$$S_{ipf} = C_{ipf} \times (C_{rpc} - C_{arpc}) \quad (6)$$

where $\boldsymbol{C_{ipf}}$ – is the planned costs, ensuring the increase in productive efficiency of dairy herd (thousand rubles), $\boldsymbol{C_{ipf}}$ – is the recoupment of production costs providing the appropriate type of reproduction (1.3 – simple, 1.5 – advanced, and 1.7 – innovative reproduction), $\boldsymbol{C_{arpc}}$ – is the actual recoupment of production costs.

Therefore, the consolidation of state support measures in milk production and subsiding policy targeted to increase milk yields in the region will contribute to the development of dairy-grocery subcomplex based on more complete use of the resource potential. It will also allow using budget funds more efficiently and monitoring their use.

4.5. Projected growth of dairy-grocery subcomplex in the Krasnoyarsk Territory

Based on designed strategic plans for the development of dairy-grocery subcomplex in the Krasnoyarsk Territory [14, 15] as well as the regional target program "Development of milking herd breeding in the Krasnoyarsk Territory for the period of 2017 – 2022", the authors have estimated production level of milk and main dairy products in the region for the period from 2017 to 2022 (Table 5).

Table 5
PRODUCTION FORECAST OF MILK AND MAIN DAIRY PRODUCTS IN THE KRASNOYARSK TERRITORYAT COMPETITIVE ENHANCEMENT OF THE MILK SUBCOMPLEX FOR THE PERIOD FROM 2017 TO 2022, THOUSAND TONS*

Targets	Year					
	2017	2018	2019	2020	2021	2022
Annual average milk yield, kg/head	5210	5680	6150	6680	7030	7560
Total milk production, thousand tons	875.3	954.2	1033.2	1122.2	1181.0	1270.1
Production of butter, thousand tons	5.5	6.5	7.5	8.0	8.5	10
Production of cheese and curd, thousand tons	5.8	7.5	8.5	9.5	10.8	12
Production of dairy products, thousand tons	481.6	572.5	620.0	729.3	826.7	952.6
Supply of milk and dairy products per year, kg/person	260	280	300	310	320	340

* - calculated by the authors

Over the long term (2017-2022) it is planned to bring average milk yields to 7560 kg/head, while gross output of milk – to 1270.1 thousand tons. It is also planned to increase the share of milk processing up to 75%, while the milk supply to population – to 340 kg/person.

The projected increase in the cost of total milk production (in comparable prices of 2014) by 2022 will amount to 13.5 bln rubles, or 221% as compared to 2014. It is planned to increase the level of state support of the milking herd operations (in comparable prices of 2014) to 6.0 bln rubles that is 15 times higher than that in 2014, as well as to increase recoupment of production costs in dairy farming to 1.5% as compared with an estimate of 2014, which was 1.12% (Table 6).

In the context of identified growth opportunities in production of milk and dairy products in the region, and the significance of the subcomplex to ensure food security of Russia, it is quite possible that the Krasnoyarsk Territory may find its niche not only among constituent entities of the Siberian Federal District, but also become an exporter of dairy products to other regions. Thanks to the proposed measures of state regulation of planned-market development of dairy-grocery subcomplex in the Krasnoyarsk Territory, which are based on fundamental and specific principles, production of milk and dairy products in the region will reach a new qualitative level.

Table 6
TARGETS FOR THE DEVELOPMENT OF DAIRY-GROCERY SUBCOMPLEX IN THE KRASNOYARSK TERRITORY FOR THE PERIOD OF 2017-2022 TAKING INTO ACCOUNT IMPLEMENTATION OF THE PROPOSED RECOMMENDATIONS *

Targets	Year					
	2017	2018	2019	2020	2021	2022
The amount of state support, mln rubles	2100	2600	3700	4500	5200	6000
The cost of gross milk production, bln rubles	**6.2**	**7.1**	**8.3**	**9.5**	**11.0**	**13.5**
Production index to the level of 2014	1.2	1.32	1.43	1.55	1.63	1.75
Recoupment of production costs	1.16	1.18	1.2	1.25	1.4	1.5

*calculated by the authors

CONCLUSION

1. In the current context, the development of dairy-grocery subcomplex requires the use of planned-market approach with regard to industries and subcomplexes of agricultural sector, which, as proposed by the authors, are understood as the combination of market principles of economy management and elements of state participation. State involvement consists in bringing the planned production volumes or a certain rate of production growth to particular producers based on the objectives of ensuring food security of the state. At that, state reimburses part of expenses through the provision of consolidated support to ensure the orderly development of production and its profitability. The authors propose state regulation of dairy-grocery subcomplex development on the basis of planned-market approach, which includes the following principles: development according to plan, subsidiarity, providing mono-subsidy, innovativeness, sufficiency of domestic products, priority of natural quality, parity income for producers, processors and distributive trade, and recoupment of expenses owing to productive efficiency.
2. The average number of cows in the region during the period from 2004 to 2014 was reduced by 15.7%. Despite this, milk production has increased by 10.1% due to the growth in productive efficiency of milking herd by 37.3%. All this testifies the transition to the competitive enhancement of milking herd breeding. Milk production in the region takes place in all climatic zones (Eastern, Western, Central, Southern, and Northern) by agricultural organizations, family-operated farms, and peasant (farmer) holdings. A larger proportion of the milk produced in the region is processed by processing plants located in the Central area. Primarily, this is "Milko" dairy plant and "Wimm-bill-Dann" OJSC, which account for 70% of milk processing in the region.
3. In terms of developed economic and statistical models the authors have revealed that the total costs to maintain dairy herds are justified at milk yields ranging from 2000 to 5200 kg/head, while the maximum recoupment of production costs is achieved at productive efficiency ranging from 5500 to 8000 kg/head depending on the climatic zone. These levels are suggested as a guide for state support of milk production.
4. It is proposed to consolidate support measures for agricultural producers by providing systematically planned support, which is a mono-subsidy. It is expected to consolidate the following measures into a single amount of support for milk production in the region: subsidies for co-financing of expenditure commitments of constituent entities of the Russian Federation related to the reimbursement of part of expenses of agricultural producers per 1 liter (kg) of sold milk; subsidies to support livestock breeding; subsidies to support livestock products; subsidies to support the delivery of seeds for cultivation of fodder crops in the Far North and equivalent areas, including crop production on low-yielding lands; subsidies to co-finance expenditure commitments of constituent entities of the Russian Federation related to compensation of part of the lending interest rate on short-term credits (loans) on the development, processing, and distribution.
5. The authors propose to use subsidization methodology of milk producers (6), which is based on the principle of recoupment of expenses owing to productive efficiency, i.e. the implementation of support should ensure producers' profitability at the level, providing the expanded reproduction (simple reproduction at 30%, advanced reproduction at 50%,

and innovative reproduction at 70%) to cover all production costs of gross output of milk, its processing, and distribution.

6. Given the planned-market approach to the development of dairy-grocery subcomplex, it is planned to bring annual average yields over the long term (2017-2022) to 7560 kg/head, gross production of milk - to 1270.1 thousand tons, increase the share of processed milk to 75%, and the supply of milk - to 340 kg/person. The level of state support of the dairy cattle operations (in comparable prices of 2014) will amount to 6.0 bln rubles that is 15 times higher than that in 2014. Recoupment of production costs in dairy farming will grow up to 1.5% compared with an estimate of 2014, which was 1.12%.

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