

Role of agricultural processing for food security of the Trans-Baikal Territory

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Abstract. The article is devoted to the assessment of the impact of the food industry of the Trans-Baikal territory on the food security of the region. A study based on the actual state of the industry showed that its development is impossible without improving the situation in agriculture. The presence of a large volume of products imported into the Trans-Baikal Territory indicates a strong dependence of its economy on external supplies. A partial solution of the problem is possible on condition of creation of agro-holdings in the region covering the full cycle production of food products from cultivation of raw materials to reception of final product.

1 Introduction

The issues of ensuring food security in the region and the country are paid considerable attention in the scientific literature [1–9]. At the state level, legislative acts and programs of development are adopted; significant financial and human resources are allocated in order to ensure maximum independence of the economy of the Russian regions from food imports. This issue has remained relevant for many decades and requires the continued involvement of the state and regional authorities.

The agricultural cultivation of crop and livestock products has always been considered as the basis of food security in the region. From different perspectives, these issues are revealed in the works of a number of specialists [10–14]. At the same time, the range of agricultural products is raw products that cover only part of the need for food of an ordinary person. The modern market requires that the offered products be sufficiently diverse and consistent with the ever-changing structure of demand. Thus, it is the food industry, as the branch of agro-processing that plays a crucial role for the food security of the region.

The situation in providing the population with food is ambiguous. On the one hand, an increase in the supply of imported products, both from other regions of Russia and from different countries, contributes to the expansion of the assortment of food products offered on the market, and to better meet the demand of the population. For the consumer, this is undoubtedly a positive fact.

On the other hand, it weakens the position of local producers, complicates their working conditions and reduces the food security of the region. Thus, a balance of interests of local producers, consumers and importers

of products should be observed. Further in the article, we will evaluate the contribution of the local food industry to the food security in the Trans-Baikal Territory.

2 Materials and methods

When conducting the study, the results of which are presented in this article, methods of economic analysis such as the analysis of series of dynamics, the method of relative indicators calculating, the balance method, methods of graphical data presentation were used. In addition, the study was based on general scientific methods such as the dialectical method of cognition, general methods of formal logic. As the actual material for analysis, the data of official statistics on the Trans-Baikal region and Russia as a whole were used. The theoretical basis was the results of previous studies of various authors on this subject.

According to the surveys carried out the development of the food industry, as an industry of the economy, is impossible without the appropriate development of agriculture. This relationship is especially evident in the economy of the Trans-Baikal Territory.

The region's remoteness from the central part of Russia, the high level of costs for electricity, heating, wages do not contribute to the development of processing of imported raw materials on its territory. It is not profitable for the entrepreneur to bring raw materials from other regions for its mass processing in the territory of the Trans-Baikal Territory and to export finished products back to central Russia and other regions. Neither the geographical location of the region, nor the state of the transport network contributes to this. Thus, only an integrated approach to solving the problems of the agricultural sector of the region as a whole will give an impetus to the development of both industries.

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3 Results and discussion

The Law of the Trans-Baikal Territory dated November 01, 2011 No. 570-ZZK “On Food Security and the Market of Agricultural Products, Raw Materials and Food in the Trans-Baikal Territory”, gives the following definition of food security in the region: this is “the state of the economy of the Trans-Baikal Territory, in which the food security of the Trans-Baikal Territory is achieved, physical and economic accessibility of food products for the entire population of the Territory in the amounts necessary for an active and healthy lifestyle are guaranteed”. It follows that the region’s economy ensures its food security only if it can guarantee the

availability of food for the local population. Thus, the demand of the population for food should be satisfied, taking into account at least the regulatory needs and the current level of income.

The processing in the region plays an important role in ensuring food security. It should be noted that the development of the food industry in the Trans-Baikal Territory is closely related to the performance of agriculture, since local processing enterprises mainly use raw materials obtained from the Trans-Baikal agricultural producers. Therefore, the negative situation in agriculture affects directly the state of the food industry. The growth rate of production of these sectors for the period 2010–2017 is reduced. This is shown in the chart.

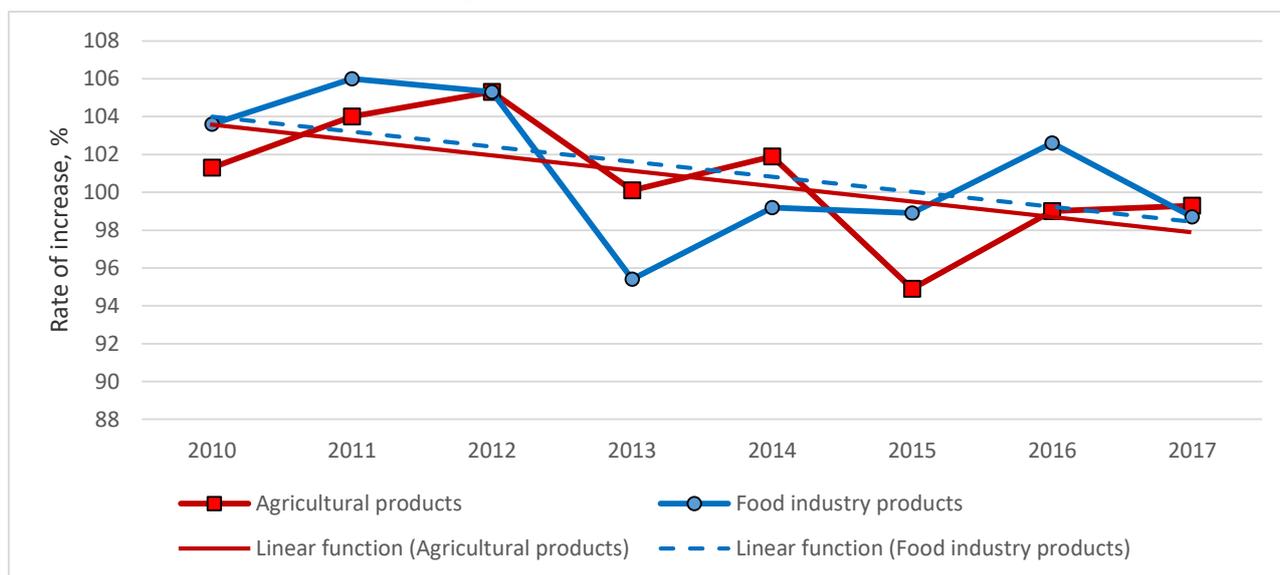


Fig. 1. Growth rate of the physical volume of agricultural and food production in the Trans-Baikal Territory (compiled by the author on the basis of [15, 16]).

Thus, the development of these industries is impossible in isolation from each other and to solve their problems it is necessary to approach comprehensively.

In addition, it should be expected that the development of agriculture, as a primary sector, will lead to an increase in manufacturing and vice versa. Any enterprise will strive to create as much as possible to maximize its productive capacity and the volume of incoming raw materials and the magnitude of demand for the final product [17]. This is the basic principle of the establishment of the successful enterprise.

Currently, many processing enterprises are experiencing problems due to lack of raw materials, and vice versa, agricultural producers do not find a market for their raw products in areas remote from large cities. Such a disproportion is observed, first of all, in the production and processing of milk, vegetables, fruits, berry. The territorial remoteness of agricultural producers from processing enterprises plays a large role in this situation. Often the need to deliver raw materials to the processing site makes agricultural cultivation of products unprofitable.

The situation in the processing industries is traditionally somewhat better than in agriculture. The average annual growth rate of food industry products for

the period under review amounted to 101.2 %, and agricultural production – 100.7 %.

Besides the factors mentioned previously, this is due to the availability of additional sources of raw materials, in addition to those received from local suppliers, which partially alleviates the shortage of local raw materials in the event of crop failure and provides additional development opportunities.

For cities and large settlements, the food industry is the main industry providing the population with food. Enterprises in this industry ensure that agricultural raw materials are brought to the state of a finished product suitable for retail chains. It is the finished products that are sold in most retail stores that cover the basic human need for food.

From this perspective, the food security of the region is determined by a number of regional factors, the most important of which are the population and productive capacity of the region's agro-industrial complex, including the food industry. They should be given special attention.

The Trans-Baikal Territory is one of the largest regions of the Far Eastern Federal District, rather large in its territory, with an area of 431.9 thousand km², its share is 6.2 % of the total area of the district [15]. At the

same time, the population as at 01.01.2019 was 1065785 people, or 13 % of the total population of the Far Eastern Federal District. The region is far from being the most poorly populated in the entire Federal District.

However, the share of the region's GRP in the total district's GPD amounted for only 6.9 % in 2017. Thus, the level of economic development of the Trans-Baikal

Territory and, in particular, the food industry remains at a fairly low level and up to now is not able to satisfy the population's needs even for basic food products. This is shown in table 1 below. Numerical data indicate that for no type of food the potential need is not provided by local products on any group of food product.

Table 1. Market capacity of the food industry of the Trans-Baikal Territory in 2017 (compiled by the author on the basis of [15, 16]).

Products group	Recommended volumes, kg/person per year	Market size, t	Production in the Trans-Baikal Territory, t	Free capacity, t	Local production share, %
Cereals (bread pasta in terms of equivalent of flour, flour, legumes)	96	103584	60531.4	43052.6	58.4
among them:					
pasta	8	8632	1395.3	7236.7	16.2
Meat products	73	78767	18988.4	59778.6	24.1
among them:					
beef	20	21580	1518.8	20061.2	7.0
pork	18	19422	365.4	19056.6	1.9
Fish products	22	23738	1470.2	22267.8	6.2
Milk, dairy products	197	212563	11337	201226	5.3
among them:					
sour-milk (except cottage cheese)	111	119769	3569.3	116199.7	3.0
milk (except raw milk)	58	62582	5196.6	57385.4	8.3
butter	2	2158	106.1	2051.9	4.9
cheese and cottage cheese products	26	28054	1041.2	27012.8	3.7

The market capacity in table 1 is determined on the basis of food consumption standards approved by Order of the Ministry of Health of the Russian Federation of 19 August, 2016 N 614 "On approval of recommendations on rational food consumption rates that meet contemporary requirements of healthy nutrition" and the actual population of the region.

The table shows only those types of food products that are produced only in the Trans-Baikal Territory. Undoubtedly, the figures presented are estimated and do not fully reflect the actual patterns of consumption, but the difference between actual productions and demand clearly shows the existence of the deficit of all types of food.

In some industries, such as meat products, fish products, milk and dairy products, the situation of local producers is particularly bad.

It should be noted that a similar study carried out earlier in 2014 showed [18–19] that at present the situation of local producers has visibly worsened. In particular, the share of local production of bread products decreased from 85.9 % in 2014 to 58.4 % in 2017, the share of fish products from 22.8 to 6.2 %, meat products from 24.9 to 24.1 %. Growth in milk and dairy products is only taking place, from 4.1 to 5.3 %, respectively.

It should be noted that the population of the Trans-Baikal Territory annually decreases by an average of

0.38% mainly due to the migration outflow of the population. Despite this, local producers have a great potential for sales growth in the market.

Table 2 presents the product balance of food products of the Trans-Baikal Territory for 2017. It is particularly worthy that according to official statistics during this period of time the export of products manufactured by this industry from the territory of the region was not carried out.

Almost all food products are imported to the territory of the region from other regions of the Russian Federation. To a lesser extent, import is carried out from abroad.

The data of table 2 show that the share of imported products in the market of the Trans-Baikal Territory is very large. The share of imports of meat products is 83.5%, animal oil – 59.7%, flour – 92, pasta – 80.5%.

Table 2 shows information only on food products produced by local enterprises. Other types of products are imported into the region.

However, local producers have experience in the production and sale of condensed milk, ice cream, cereals, pasta. At the moment the enterprises that produced them earlier are either liquidated or have lost production capacities for the manufacturing of these types of products due to their physical and moral depreciation.

Table 2. Commodity balance of food industry products in the Trans-Baikal Territory for 2017 (compiled by the author on the basis of [15, 16])

Products group	Production by large and medium enterprises	Production by small enterprises	Total production in the Trans-Baikal Territory	Import	Domestic consumption and restocking	The share of imported products, %
Cereals (bread pasta in terms of equivalent of flour, flour, legumes), t	37575.3	22956.1	60531.4	75953.4	136485	55.6
among them:						
flour	4605.1	908	5513.1	63382.4	68896	92.0
pasta	851.1	544.2	1395.3	5772.7	7168	80.5
confectionery	3291.8	2227.3	5519.1	6798.3	12317	55.2
Meat products, t	17026.1	2327.7	19353.8	12227.3	31581	38.7
among them:						
meat and poultry, except offal	1267.5	616.7	1884.2	9524.6	11409	83.5
sausage goods	14644.3	461.7	15106	2702.7	17809	15.2
Fish products, t	1470.2	0	1470.2	470.2	1940.4	24.2
Milk, dairy products, t	8114.2	3222.8	11337	652.8	11990	5.4
among them:						
butter	53.4	52.7	106.1	156.9	263	59.7
cheese and cottage cheese products	820.8	220.4	1041.2	495.9	1537.1	32.3

At the beginning of 2018, 156 enterprises in the field of food production and 29 in the production of drinks were operating in the Trans-Baikal Territory. The growth rate compared to the beginning of 2010 amounted to 87.3 % by type of activity taken as a whole. At the beginning of 2018, 855 enterprises worked in agriculture, the growth rate by 2010 was 69.5 %.

Thus, over the period under review, there has been a steady decrease in the number of organizations, and the situation in agriculture is even more unfavorable than in the food industry. The reasons for this are the lack of consistent and permanent links between large agricultural producers and processors, the lack of direct access of agricultural producers to the final consumption sector – to the retail market, the lack of financial resources for organizing their own processing of raw materials and bringing the product to readiness suitable for sale through the distribution network.

On the other hand, processing enterprises are constantly experiencing a shortage of agricultural raw materials. In the presence of unmet demand for local products, the production capacities of the food industry invariably have large reserves. In particular, the use of milk production capacities in 2017 amounted to only 21.4 %, dairy products – to 69.1 %, flour – to 11.9 %, bakery products – to 48.8 %, pasta – to 37.1 % [16].

The supply of food products is mainly ensured by its output by large and medium enterprises. For example, according to official statistics in 2017 the production of fish products, sour cream, cream and mineral water belongs only to large and medium-sized producers. Their share in the total production of flour in 2017 amounted to 83.5 %, meat products 88 %, sausages 96.9 %, milk 74.9 %, cheeses, cheese products and cottage cheese 78.8 %.

The way out of this situation is seen in the creation of agro-industrial holdings with a full production cycle from growing agricultural raw materials to selling finished food products to retail chains. Examples of such

organizations are available in the Russian Federation and in the territory of the region at the present time, and it is they that are the most successful and sustainable for a long time in the Trans-Baikal market [20]. The most important of them are JSC “Chita Dairy Plant”, LLC “Makkaveevsky Food Processing Plant”, OJSC “Chernovsky Vegetable Grower”. These enterprises, at least partially, have their own raw material base, which allows them providing some sustainability in production capacity in today's difficult economic conditions, although at an insufficiently levels.

In the Trans-Baikal Territory there are significant market reserves for the development of local production of meat, dairy products, canned goods of all kinds, vegetable oil, confectionery and other products. Moreover, for some types of products there is also a raw material base, for example, for processing meat, wheat, rapeseed and oats. All these are grown by agricultural enterprises, but not processed for various reasons. Raw materials are sold in bulk at low prices, which exacerbates the situation in agriculture and reduces the food security of the region.

The establishment of agricultural holdings in the region is possible in various ways. This may be a combination of existing agricultural, processing, trade, and logistics enterprises in partnership. In this case, the synergistic effect can be fully realized due to the most complete coordination of the volumes of production, processing and sale of finished products at all stages of production.

An independent form may be joining the largest enterprises of agricultural units, processing as a rule. For agricultural producers, such an accession will ensure the guaranteed market outlets for their products, and will allow planning economic, investment and financial activities, taking into account the expected revenue. An increase in the size of joint investments to better balance the production volumes of all participants is to be expected.

In addition, the organization of processing of raw materials on the basis of existing agricultural enterprises, for example, the processing of rapeseed, oats, wheat, meat, or the creation of new holdings may be an effective form of expansion.

The advantages of this form of development are obvious, although they require significant financial resources, experience in organizing of such production, and human resources. Its use will solve the problem of imbalances in the development of the agro-industrial complex of the Trans-Baikal Territory and enter the market with high-quality local products.

4 Conclusion

Food industry products play an important role in ensuring food security in the Trans-Baikal Territory. On the one hand, this industry is a sphere of further product processing of agricultural enterprises. In this sense, the industry provides a market for agricultural producers. On the other hand, it brings these products to a finished state, suitable for sale to the final consumer. Thus, the food industry expands the range of food products of the population, ensures their constant physical and economic availability. This allows talking about its great contribution to ensuring the food security of the region.

The analysis carried out in the article showed that the needs of the Trans-Baikal Territory are largely met by imported products. This enhances competition in the local food market and creates additional barriers for local processing industries. Under current conditions, local producers are forced to look for new ways of development. One of them is the establishment of agro-industrial holdings with a complete production cycle. Their production covers all stages of the production process, from growing agricultural raw materials to selling final food products to retail chains. They are the least dependent on the competitors' actions, the purchasing policy of retail chains, the prices of raw materials and final products in the market that is why their activity is the most sustainable.

The experience of other regions shows the greatest efficiency of exactly the kind of industries. Throughout Russia these are enterprises for the processing of meat, milk, canned goods, natural wines, juices, processing of industrial crops, and others. The agricultural cultivation of such enterprises is directly related to its processing. Thus, the stability and independence of the enterprise are most provided.

It is not a matter of combining all agricultural enterprises with processors of their products. Undoubtedly, some agricultural producers and manufacturing industries should remain independent. This will enable small enterprises and individual entrepreneurs to function in these areas in the future, and will ensure a variety of the market supply. Ultimately, their contribution to food security is enormous. Thus, each enterprise will take its own position; its own niche in the market and the population's food needs will be most satisfied.

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