POSSIBILITIES OF AGRICULTURE COMPETITIVENESS INCREASING

Mikhailushkin P. V
Kuban State Agrarian University, Krasnodar, Russia

Lubkova E. M., Shilova A. E
T.F. Gorbachev Kuzbass State Technical University, Kemerovo, Russia

Zhuravlev P. V
Plekhanov Russian University of Economics, Moscow, Russia

Karpenko E.Z
Russian University of Economics, Moscow, Russia

Nikiforov S.A
Southwest State University, Kursk, Russia

ABSTRACT

At present there are characteristic features in the development of agriculture in the coal-mining regions, including both negative: an insignificant share of agricultural production in the GRP structure, a difficult environmental situation, less attractive geographical conditions for the development of agriculture than those in the agrarian regions, and positive ones: high technical and human resources, a higher level of per capita income than in the agrarian regions, a high level of investment activities. In this connection, it is urgent to study the possibilities of increasing the competitiveness of coal-mining regions taking into account their specifics.

Keywords: Food Market; Food Security; Food Self-Sufficiency; Agriculture Competitiveness.

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1. INTRODUCTION

Issues of food security at the state level and food security at the regional level attract the attention of many modern scientists [1; 2].
Food security is still one of the most important topics on the agenda of the world economic community, but if decades ago the issues of physical and economic accessibility of food were mainly considered, the quality aspect of ensuring food security, as well as the problem of self-sufficiency in food are at the forefront [3].

The solution of food security issues at the regional level, on the one hand, is certainly logical and is due to the significant differentiation in the social and economic development of the regions of the Russian Federation, and as a result, sharp differences in the level of economic accessibility of food in various territories. On the other hand, this trend generates significant differences in the assessment of food security in certain regions, which does not allow effective assessing the characteristics of food markets at the level of federal districts, and there is also the problem of determining the level of food security of the constituent entity the federation.

Considering the possibilities of developing the agriculture of individual communities, it can be noted that climatic and geographic conditions, industrial and labor potential determine the possibilities for the development of agriculture and its competitiveness [4-8].

Maintaining the effective agriculture functioning is the basis of the region's food supply. Industrial regions have features of the functioning and development of agriculture, including: an insignificant share of agricultural products in the GRP structure, a difficult environmental situation, less attractive geographical conditions for the development of agriculture than those in agrarian regions, high technical and human potential, higher level per capita income than in agrarian regions, comparatively low life expectancy, high level of investment activities [9-12]. Certain types of industry have different effects on the agro-industrial complex of the regions [13].

2. LITERATURE REVIEW


A number of researchers insist on the urgency of considering food security issues at the regional level [19-22]. For large countries, the regional discrepancies in the development of the agro-industrial complex are very palpable. The attention of scientists is also attracted by the problems of the financial competitiveness of agriculture [23; 24].

The influence of the coal industry on the functioning of regional agriculture is very tangible. On the one hand, the coal industry development contributes to urbanization, which reduces the opportunities for agricultural development in individual communities [25], and the costs of the coal industry are the inevitable pollution of the environment, which has a negative impact on food production opportunities [26]. This is exemplified by China, in which the significant pollution of water bodies exacerbates water shortages and raises concerns about soil contamination and food safety [27-29]. On the other hand, one can note the positive effects of the coal industry development on agriculture and the food industry: projects in the field of mining can contribute to the electrification and catalyzing of energy infrastructure in rural areas [30-32], the coal industry development in remote and hard-to-reach areas can help competitiveness of local producers of agricultural products by reducing their transportation costs [33].

3. METHODOLOGY

Monographic and economic-statistical methods of research are used in the article.

In this article the average producers’ prices for selected types of agricultural products and the indicators of agricultural production efficiency have been researched.
4. RESULTS
It is important to find the solution to the problem of the possibility of producing the competitive agricultural products for regions involved in coal mining. The competitiveness of agriculture in the coal-mining region is proposed to be understood as the ability of the regional agriculture to produce food that can compete in price and quality with the analogues offered for import through the use of production, innovation, investment, human resource potentials in the coal-mining region and government support measures [34; 35].

The study of the coal-mining industry agriculture competitiveness was carried out and the possibilities for its improving were considered on the example of the Kemerovo region.

The Kemerovo region is a typical industrial region; the developed coal industry determines such features of the region as high urbanization (the urban population is over 85%), high incomes of the population in comparison with neighboring regions, production potential and investment availability, low life expectancy and existence a number of environmental problems.

The Kemerovo region has features of functioning and development of agriculture, which include an insignificant and declining share of agricultural products in the structure of the gross regional product, a difficult ecological situation, geographical conditions less attractive for the development of agriculture than in agricultural regions.

The budget deficit, the lack of investment, the negative balanced financial result of organizations, the more rapid development of extractive and non-manufacturing industries, the growing price index of industrial goods producers and the increasing share of the population with monetary incomes below the subsistence level, the growth of unemployment pose a threat to the region's economy [36-40].

During the five-year period, agricultural production increased more than one and a half times, while the share of agriculture in the gross regional product remained insignificant throughout the period. The Kemerovo region produced 57.4 billion roubles of agricultural products in 2016.

The price index of agricultural producers in comparison with the price index of industrial producers did not have sharp jumps, and the prices of agricultural producers decreased in 2015-2016.

We can say that the factors affecting the demand for agricultural products are ambiguous. Despite the population decline, stable average monthly incomes and a high proportion of the population employed in industry determine the increased requirements for the quality of food. The level of the local food market characterizes the opportunities for the development of agriculture in a negative way, it is obvious that at present it is necessary to introduce measures to improve it. Regional production is characterized by high costs, which is associated with high tariffs for raw materials, transportation, electricity, and with the peculiarities of agriculture in the region of risky agriculture.

Characteristics of external factors that determine the possibility of development of agriculture of the Kemerovo region are given (Table 1).

Table 1. Characteristics of external factors that determine the possibility of development of agriculture of the Kemerovo region

<table>
<thead>
<tr>
<th>Factor</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demography</td>
<td>A slight decrease in the population of the Kemerovo region. Natural and migration decline of the population. Reducing the proportion of the rural population. High level of urbanization, outflow of working-age population from rural areas.</td>
</tr>
<tr>
<td>Income of people</td>
<td>The Kemerovo region as an industrial region is characterized by higher income per capita than in the neighboring agricultural regions.</td>
</tr>
</tbody>
</table>
Factor Characteristic

| The level of development of the regional market | Undeveloped infrastructure of the regional food market. High handling costs. |
| Tariffs for electricity and gas, transportation, fuel resources | High and rising electricity and gas tariffs. High proportion of transport and fuel costs in the cost of food. |
| Rouble exchange rate | Unstable exchange rate of the national currency. |
| State Regulation | There are allocated 127,664,437 thousand roubles subsidies to producers making modernization of production and implementing the activities of innovative technologies. Support for small businesses, credit support and state guarantees for agriculture and sustainable development of rural territories of the Kemerovo region in 2014-2020 |

Thus, at present unfavorable factors for the development of agricultural production have developed in the Kemerovo region: the fixed assets of many enterprises are outdated, the share of unprofitable enterprises is high, and wages in agriculture and the food industry are quite low, which contributes to further degradation of the village in the Kemerovo region. At the same time, however, favorable factors of access to intangible resources have been formed. First of all, it is
necessary to note the high scientific potential of the region, which can be used to introduce innovations in the activities of enterprises of the Kemerovo region, which will contribute to improving the efficiency of the industry.

To study the opportunities to compete in price with producers of the neighboring regions, the average producer prices for selected types of agricultural products in 2016 were studied (Table 3).

Table 3. Average producers’ prices for certain types of products, roubles / tons

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kemerovo region</td>
</tr>
<tr>
<td>Rye</td>
<td>6038</td>
</tr>
<tr>
<td>Cereals and legumes</td>
<td>8783</td>
</tr>
<tr>
<td>Wheat</td>
<td>9238</td>
</tr>
<tr>
<td>Potatoes</td>
<td>12551</td>
</tr>
<tr>
<td>Cattle (carcass weight)</td>
<td>168035</td>
</tr>
<tr>
<td>Pigs (carcass weight)</td>
<td>154178</td>
</tr>
<tr>
<td>Poultry (carcass weight)</td>
<td>105580</td>
</tr>
<tr>
<td>Cattle raw milk</td>
<td>22597</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>74223</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>80428</td>
</tr>
<tr>
<td>Hen eggs</td>
<td>3945</td>
</tr>
</tbody>
</table>

* compiled by authors on the basis of statistical data https://www.fedstat.ru

It is established that the Kemerovo region has a competitive advantage in price in the production of meat and meat products, which is a favorable prerequisite for the development of meat production and further increase in the export of this type of products to the neighboring regions.

Dairy production in the Kemerovo region is, on the contrary, is quite expensive for the producers; the average price of dairy producers in the Kemerovo region being significantly higher than in the neighboring regions.

At present, the Kemerovo region fully provides itself with potatoes, however such high own production is not profitable for the region: the potato producers’ price is almost twice as high as producers’ prices in the Tomsk region and 20-30% higher than the producers’ price in other regions. A similar situation is typical for the production of tomatoes and cucumbers.

Thus, the Kemerovo region as a typical industrial region does not have an advantage over the price of food products of the neighboring regions; therefore, the rational commodity exchange of food products between the Kemerovo region and the neighboring regions is needed, as well as the search for growth points for the agro-industrial complex in the industrial region. The indicators of agricultural production efficiency in these regions are considered (Table 4).
Table 4. Indicators of non-price competitiveness of agriculture

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kemerovo region</td>
</tr>
<tr>
<td>Milk production per cow, kilograms.</td>
<td>4168</td>
</tr>
<tr>
<td>Average annual egg laying of farm laying hens, pieces</td>
<td>314</td>
</tr>
<tr>
<td>Yield of cereals and legumes (in weight after processing, hundred kilograms per hectare)</td>
<td>17,1</td>
</tr>
<tr>
<td>Milk production per cow, kilograms.</td>
<td>4168</td>
</tr>
<tr>
<td>Average annual egg laying of farm laying hens, pieces</td>
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</tr>
<tr>
<td>Yield of cereals and legumes (in weight after processing, hundred kilograms per hectare)</td>
<td>17,1</td>
</tr>
<tr>
<td>Sown area, thousand hectares</td>
<td>971,7</td>
</tr>
<tr>
<td>Gross grain harvest (in weight after processing), thousand hectares</td>
<td>1034,1</td>
</tr>
<tr>
<td>Cattle stock, thousand head of cattle</td>
<td>192,4</td>
</tr>
<tr>
<td>Pig stock, thousand head of pigs</td>
<td>410,9</td>
</tr>
<tr>
<td>Dairy production, thousand tons</td>
<td>1414,9</td>
</tr>
</tbody>
</table>

* compiled by authors on the basis of statistical data https://www.fedstat.ru

The presented statistical data testify to the impossibility of the Kemerovo region competing with other regions in terms of production scale, apart from the production of milk and eggs.

The high efficiency of milk and dairy production creates the conditions for the development of competitive production.

In the current conditions, when the competitiveness of the Kemerovo region in the production of agricultural products is low, the advantages created by the coal-mining industry in the region should be used to improve the competitiveness of agriculture. The development of agriculture in the region will promote the growth of the region's food self-sufficiency, as well as the diversification of risks of the industrial enterprises through the expansion of their activities.

The basis for the Kemerovo region agriculture competitiveness should be a favorable investment climate, formed at the expense of the developed industrial production, the possibility of producing the high added value food products due to the existence of opportunities for deep processing of agricultural products and the development of cooperative ties between enterprises of the region.

The mechanism is proposed for increasing the competitiveness of agriculture in the coal-mining region using the Kemerovo region as an example (Figure 1).
Figure 1 Mechanism for increasing the competitiveness of the Kemerovo Region agriculture

The impact on the food market is provided by the subjects related to 4 blocks: administration, science and innovation, industry, finance and investment.

The administration block is represented by state authorities. Increasing the competitiveness of the Kemerovo region agriculture [41-44] is possible only with the implementation of state support, which may include state and municipal guarantees [45], subsidies, co-financing of production modernization [46], foreign trade protection, land protection measures, development of multi-format trade infrastructure, and development of trade in rural areas. The intensification of production, the increase in the share of high added value products and the investment attractiveness of the agro-industrial complex are possible due to the further development of the agro-industrial cluster of the region [47-50]. Simultaneously with the influence on the sellers, the administration block should support food consumers by regulating prices for socially significant products, the multipack distributing among the most vulnerable strata of society [51-53] and certificating food.

The science and innovation block is represented by such organizations as Kuzbass Technopark JSC, Technology transfer center of Kemerovo State Agricultural Institute, Kemerovo Agricultural Research Institute, and Kemerovo Agrarian Technical School. The organizations of this block are responsible for training of highly qualified personnel for agriculture, the development of technologies for deep processing of agricultural products [54].

The industrial block includes the largest industrial enterprises of the Kemerovo region, which possess machinery, technologies and personnel necessary for production intensification and deep processing of raw materials [55]. Also, industrial enterprises are interested in investing in agriculture to diversify their own risks; additional incentives for them are the measures of state support for agriculture [56]. The industrial block indirectly affects the behavior of consumers, determining both a high level of per capita income, and high requirements for food quality [57].

The finance and investment block is represented by the Kemerovo region State Public Institution "Agency for attracting investment" and banking and credit institutions.

Their tasks in the sphere of increasing the competitiveness of agriculture in the coal-mining region include lending to commodity producers, support for the implementation of investment projects and assistance in finding business angels.
4. CONCLUSION

Thus, in order to diversify the risks of industrial enterprises in coal-mining regions and improve their socio-economic development, it is necessary to develop agricultural production that allows producing high-value products with high added value. The advantage of coal-mining regions over agrarian ones should be the developed links between industry as a source of investment, research institutes and food producers [58; 59].

Increasing the competitiveness of agriculture in the Kemerovo region is possible due to the intensification of production of dairy products and the development of fodder for dairy cattle, increasing the added value of the flour and cereal industry based on the production of biopolymers, gluten and thickeners using technologies of deep processing of raw materials, the development of vegetable production through the introduction of modern greenhouse technologies of the fifth generation.

Currently, there are objective difficulties in the development of agriculture of the Kemerovo region, at the same time, we can talk about the existence of an urgent need for the development of agriculture and the potential for such development [60; 61]. In the course of economic reforms in the agricultural sector, the production potential is formed and planned to increase, the further effective development of which largely depends on the stability of the integrated development of rural areas, the activation of the human factor of economic growth. Increasing the socio-economic potential of rural areas, making this process sustainable and irreversible is a strategic objective of the agricultural policy of the Kemerovo region. Further increase of the role and competitiveness of the agricultural sector of the economy largely depends on the improvement of the qualitative characteristics of the labor resources in rural areas, improving the level and quality of life in rural areas, a more complete use of available labor resources, attracting and securing highly qualified personnel and in general solving the problem of staffing the agricultural sector, taking into account unfavorable forecasts for the next few years in relation to the demographic situation and the formation of the labor resource potential of the village.

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Possibilities of Agriculture Competitiveness Increasing


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Possibilities of Agriculture Competitiveness Increasing


