Improving the competitiveness of agricultural products as a basis for solving import replacement issues

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Abstract. The paper deals with the problem of increasing the competitiveness of agricultural products. In this regard, the priority is to determine the competitiveness indicators with its classification by groups and evaluation criteria. The analysis is expanded by the method of determining the level of grain competitiveness, which is tested in the districts of the Krasnoyarsk region and is based on a comparison of indicators of the investigated district with the leading districts with the largest share of production in the total regional market. It is proposed to create a logistical infrastructure, which is the formation of the wholesale distribution centre in order to improve the competitiveness of agricultural products.

1. Introduction
Ensuring food security on the basis of import replacement in the context of globalization of national agro-food markets is possible under macroeconomic conditions that contribute to the development of a competitive agricultural sector [1]. Research and practice show that improving the competitiveness of local agricultural products in the prospect is possible for all its types, if we ensure the rational placement of production, use modern technology and prepare qualified staff [2]. There are many reasons for the low competitiveness of local agricultural products: low quality of goods, unattractive packaging, high price, lack of advertising, an indistinguishable range and much more.

Competitiveness of products is a multidimensional concept, which means that products meet market conditions, specific requirements of consumers not only in terms of their quality, technical, economic, aesthetic characteristics, but also in terms of other conditions of its realization. Issues of competitiveness in general, as well as of the country, region, industry or product are considered in many studies of both foreign and local scientist-economists. Such authors as Mester Liana-Eugenia & Bugnar Nicoleta-Georgeta, in their work consider competitiveness as "a complex concept that defines the ability of a firm or country to cope with real or potential competition of companies or countries in a particular market, in the world market, accordingly, and is synonymous with economic efficiency" [3].

Kardos Mihaela offers considering the competitiveness from such points of view, as productivity, technological innovation, investment, structural policy, education and staff training, technological progress, macroeconomic stability, good management, rule of law, transparent institutions, optimal market size, the ability to produce better and cheaper, etc., none of them excluding the other [4].

The works of foreign authors more reflect the competitiveness of the country or company (enterprises, companies), and the consideration of the product competitiveness is not sufficiently complete. We would like to note that the competitiveness of products (goods) as an economic category
in the Russian economy is still poorly considered, it is essentially reduced only to the general requirements that the goods must have sufficient quality and an acceptable sales price. But in addition to price and quality, a number of other factors affect the competitiveness of products, such as market conditions and state support.

The competitiveness indicators of agricultural products include the following (table 1).

### Table 1. Competitiveness indicators of agricultural products

| Groups       | Indicators                                                                 | Criteria                                                                 |
|--------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Normative    | Fat, protein, carbohydrates, gluten, mechanical contamination               | GOST for the corresponding product                                        |
| Technical    | Food, energy value, caloric content, chemical composition, content of harmful substances and heavy metals, period of storage | Recommended standards of the Ministry of health in the Russian Federation |
| Physical     | Physical and standard weight of products (grain, milk, etc.)                | Production standards by product types                                     |
| Technological| Color, smell, consistency, etc.                                             | GOST for the corresponding product                                        |
| Transportation| Low-transportable and transportable, the share of packaged products         | Indicators of the market leading companies of a certain type of product   |
| Economic     | Cost, labor input                                                           | Normative technological maps calculated by the Ministry of agriculture for different zones of the Krasnoyarsk region |

*a*It is made by authors on the data basis of the article from Koryakina O. V. criteria, indicators and factors of product competitiveness in the agrarian sphere of economy.

Currently, there are a number of common methods for evaluating the competitiveness of products. The main ones are: the method of rating, the ratio of price and quality of products, determining competitiveness based on the weighting factor in the criteria, market share, the use of an integral indicator, the matrix of formation of a competitive market map [6, 7].

### 2. Research method

Evaluation of the grain competitiveness in a certain district is possible on the basis of comparison with the leading districts in the production of these products and their evaluation. On the basis of the proposed method, we present the calculation of the grain competitiveness in the Balakhtinsky district in comparison with the leading districts: Nazarovsky and Uzhursky, in which in recent years there have been high rates of economic efficiency of grain production.

The most effective grain producer is the Uzhursky district. This is evidenced by the highest crop yield, compared with the considered districts (Balakhtinsky and Nazarovsky), equal to 34.8 c/ha in 2016. Also, the highest selling price of 1 ton of grain, the level of marketability and the mass fraction of gluten is observed. The level of profitability in 2017 is slightly higher (35.9 %) than in the Nazarovsky district (30.3 %). Such results were achieved by the company through the introduction of new technologies of grain production.

In the Balakhtinsky district in 2017, grain production was effective, since the level of profitability was 20.0 %, but all indicators are lower than the values of the compared districts. It should be noted that the grain class 3 (feed) is sold only in this district as the gluten index is below 23.0 %, which corresponds to a low level in accordance with GOST standards.

The level of competitiveness of products is determined by the formula:

$$L_c = \frac{\sum X_i g_i}{\sum X_{\text{max}} g_i}$$

where $L_c$ is the level of competitiveness:
$X_i$ is the evaluation of criteria in the company's products;
$X_{\text{max}}$ is the maximum evaluation of criteria;
$g_i$ is the weighting factor in the criteria of evaluation.

3. Results
To evaluate and compare the competitiveness of the district's product, it is necessary to study the market share which it occupies in the total volume of the regional market. A large market share in all indicators is occupied by the Uzhursky district: 27% of the sold grain of the Krasnoyarsk region and 16.2% of the gross grain harvest. Sowing areas of grain crops in the amount of 11% are concentrated in the Uzhursky district; the Balakhtinsky district in all indicators has values lower in relation to the compared district. Evaluation of the grain competitiveness in the study district will be presented in table 2.

| Criteria of evaluation          | Weighting factor, $g_i$ | Evaluation of criteria, points | Weighted evaluation of criteria |
|---------------------------------|-------------------------|--------------------------------|--------------------------------|
|                                 | $X_{\text{max}}$ | $X_E$ | $X_{\text{max}} \times g_i$ | $X_E \times g_i$ |
| the Balakhtinsky district       |                        |                                |                                |
| Relative market share, %        | 0.2                    | 5                              | 3                              | 1                           | 0.6                           |
| Mass fraction of gluten, %      | 0.2                    | 5                              | 2                              | 1                           | 0.4                           |
| Production cost, rub.           | 0.2                    | 5                              | 2                              | 1                           | 0.4                           |
| Yield, c/ha                     | 0.2                    | 5                              | 3                              | 1                           | 0.6                           |
| Level of profitability, %       | 0.2                    | 5                              | 2                              | 1                           | 0.4                           |
| Total                           | 1                      | -                              | -                              | 5                           | 2.4                           |
| the Nazarovsky district         |                        |                                |                                |                              |                               |
| Relative market share, %        | 0.2                    | 5                              | 2                              | 1                           | 0.4                           |
| Mass fraction of gluten, %      | 0.2                    | 5                              | 3                              | 1                           | 0.6                           |
| Production cost, rub.           | 0.2                    | 5                              | 4                              | 1                           | 0.8                           |
| Yield, c/ha                     | 0.2                    | 5                              | 4                              | 1                           | 0.8                           |
| Level of profitability, %       | 0.2                    | 5                              | 5                              | 1                           | 1                             |
| Total                           | 1                      | -                              | -                              | 5                           | 3.6                           |
| the Uzhursky district           |                        |                                |                                |                              |                               |
| Relative market share, %        | 0.2                    | 5                              | 5                              | 1                           | 1                             |
| Mass fraction of gluten, %      | 0.2                    | 5                              | 4                              | 1                           | 0.8                           |
| Production cost, rub.           | 0.2                    | 5                              | 3                              | 1                           | 0.6                           |
| Yield, c/ha                     | 0.2                    | 5                              | 5                              | 1                           | 1                             |
| Level of profitability, %       | 0.2                    | 5                              | 4                              | 1                           | 0.8                           |
| Total                           | 1                      | -                              | -                              | 5                           | 4.2                           |

After calculating the weighted evaluation of criteria, it can be noted that the level of grain competitiveness in the Balakhtinsky district is estimated as low, this is evidenced by a coefficient equal to 0.48.

$L_c = \frac{2.4}{5} = 0.48$

The level of grain competitiveness in the Nazarovsky district is estimated as average, this is evidenced by a coefficient equal to 0.72.

$L_c = \frac{3.6}{5} = 0.72$

The level of grain competitiveness in the Uzhursky district is estimated as average, this is evidenced by a coefficient equal to 0.84.

$L_c = \frac{4.2}{5} = 0.84$
A comparative analysis of the grain competitiveness in the investigated districts of the Krasnoyarsk region showed that the level of competitiveness of the Balakhtinsky district is low, due to the fact that in this district there is a low yield of grain crops, and the level of production cost is higher than the average for the region, which is affected by the lack of using modern production technologies. Also, there is a low quality of grain, as in this district grain only forage purposes is produced and sold.

However, producers in Russia can expect for the competitiveness in the local market of agricultural products only by reducing production costs and increasing labor productivity. Therefore, highlighting evaluation criteria of agricultural product competitiveness, it seems reasonable to base the indicators characterizing the level through the definition of the quantity and quality of goods produced by agricultural producers [9].

The main directions of increasing the competitiveness of agricultural products can be:

- improvement of production technologies and quality control of products on the basis of international standards;
- development of agricultural sectors with the use of advanced international experience and improvement of technologies;
- creation of logistical infrastructure that allows to form a sustainable sale, improve the quality of products and reduce the costs associated with its commodity turnover.

In this regard, the most successful solution may be the creation of the wholesale distribution centers, whose tasks are the modification and processing, packaging, transportation and trade of agricultural products, the provision of veterinary certification services, phytosanitary control.

Today, the formation of the wholesale distribution centers (the WDC) has significant difficulties, such as the lack of initiative on the part of investors and public authorities, the involvement of small businesses that are unable to finance such large-scale projects, the difficulty of the land plot getting for the construction of the WDC. However, the establishment of the wholesale distribution centers on the other hand carries positive aspects, which consist in bringing (together in a single flow of goods) the efforts of all goods producers with the goal of providing consumers with competitive products [10].

The process of organizing the WDC should initially be based on the choice of its location, taking into account the requirements of optimization of the serviced territories. To do this, it is necessary to select the factors affecting the placement of the WDC, and using factor analysis and the method of "center of gravity", to calculate the action zone of these centers. All factors that determine the position of the WDC can be divided into two groups: socio-economic and infrastructural and geographical. The first group includes such indicators as: the population, the number of agricultural producers, the sale volume of agricultural products by agricultural producers, the volume of food sold. The second is the volume of cargo carriage by auto transport, the number of enterprises and small shops for the processing of agricultural products.

4. Conclusion

Competitiveness of products is an essential condition for the activities of any enterprise, district or region in modern conditions, to improve the performance of production activities and effective functioning in a competitive environment. Calculations of grain competitiveness in the three main districts of the Krasnoyarsk region indicate its different level depending on the conditions of production, prevailing in them. In general, it should be noted that the functioning of the wholesale and distribution centers is a timely and necessary condition for improving the competitiveness of agricultural products and the implementation of the policy of import replacement in the current conditions in the functioning of agriculture in the Krasnoyarsk region.

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