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## **INNOVATIVE APPROACH TO IMPROVING THE COMPETITIVENESS OF THE SUGAR INDUSTRY IN KAZAKHSTAN**

*In the context of ensuring the security of the national economy, the issue of providing the country with high-quality food products is relevant. Consequently, the most important issue is the development of the domestic sugar industry and increasing its competitiveness level. The article analyzes the current state and trends in the development of the sugar industry and beet farming of the Republic of Kazakhstan. Solving the problems that arise in the beet-sugar subcomplex of the country requires innovative development of the industry through mastering the achievements of scientific and technological progress. The sugar industry requires careful attention in terms of improving and increasing the sustainability of functioning, where strategic management, tactical modernization, and innovative activities play a key role. In this context, the authors developed effective proposals to increase the competitiveness of the sugar industry in Kazakhstan on the basis of diversified innovations.*

**Keywords:** *sugar industry, competitiveness, innovation, co-product, diversification of the production*

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## **ИННОВАЦИОННЫЙ ПОДХОД В ПОВЫШЕНИИ КОНКУРЕНТОСПОСОБНОСТИ САХАРНОЙ ПРОМЫШЛЕННОСТИ КАЗАХСТАНА**

*В контексте обеспечения безопасности национальной экономики актуальным является вопрос обеспечения страны высококачественными продовольственными товарами. Следовательно, важнейшим вопросом является развитие отечественной сахарной промышленности и повышение уровня ее конкурентоспособности. В статье анализируется современное состояние и тенденции развития сахарной промышленности и свекловодства Республики Казахстан. Решение проблем, возникающих в свеклосахарном подкомплексе страны, требует инновационного развития отрасли на основе освоения достижений научно-технического прогресса. Сахарная промышленность требует пристального внимания с точки зрения совершенствования и повышения устойчивости функционирования, где стратегическое управление, тактическая модернизация и инновационная деятельность играют ключевую роль. В этом контексте авторами разработаны эффективные предложения по повышению конкурентоспособности сахарной отрасли Казахстана на основе диверсифицированных инноваций.*

**Ключевые слова:** *сахарная промышленность, конкурентоспособность, инновация, побочные продукты, диверсификация производства*

*Introduction.* Sugar industry enterprises play an important social and economic role in the country's economy. Ensuring the effective development of the industrial sector of the country is possible due to the transition to an innovative development model and high innovative activity of enterprises. The process of forming innovations and applying them has its own peculiarities at enterprises of the sugar industry. The development and increase of innovative potential in the sugar industry is a strategic task of a long – term nature. By introducing innovations, enterprises reduce production costs, thereby gaining a larger share in the market and increasing their competitiveness.

Currently, the shortage of sugar in domestic production is 240 thousand tons, or more than half of the demand. In this context, providing the domestic market with sugar product and increasing its competitiveness is an important national economic task, contributing to ensuring food security and long-term sustainable economic development of Kazakhstan.

*Results/discussion.* The main production capacities of Kazakhstan’s sugar production are concentrated in two regions: Almaty and Zhambyl. Three and two sugar factories operate in these regions, respectively. In general, in the field of sugar industry in Kazakhstan, five main factories operate today. Relatively small capacities of sugar production are concentrated in the following regions: Atyrau, Karaganda, North Kazakhstan and Tuketan (tab. 1).

Table 1

**Dynamics of sugar production in Kazakhstan, thous. tons**

Indicators	Years				
	2015	2016	2017	2018	2019
Production of all nomenclature types of sugar (sugar raw materials, refined cane sugar, beet sugar, molasses), including:	283,82	458,17	372,04	279,29	249,93
– cane sugar	225,34	370,93	264,53	161,17	–
– beet sugar	17,65	40,90	57,60	75,46	62,09

Source: author’s developed on the basis of [1].

In the strategic period from 2015 to 2019, the volume of sugar production decreased by 33,89 thousand tons. Taking into account the cyclical nature of sugar production, it is important to note that the maximum volume of production came in 2016 and 2017. In these years, 458.17 and 372.04 thousand tons were produced, respectively (fig. 1).

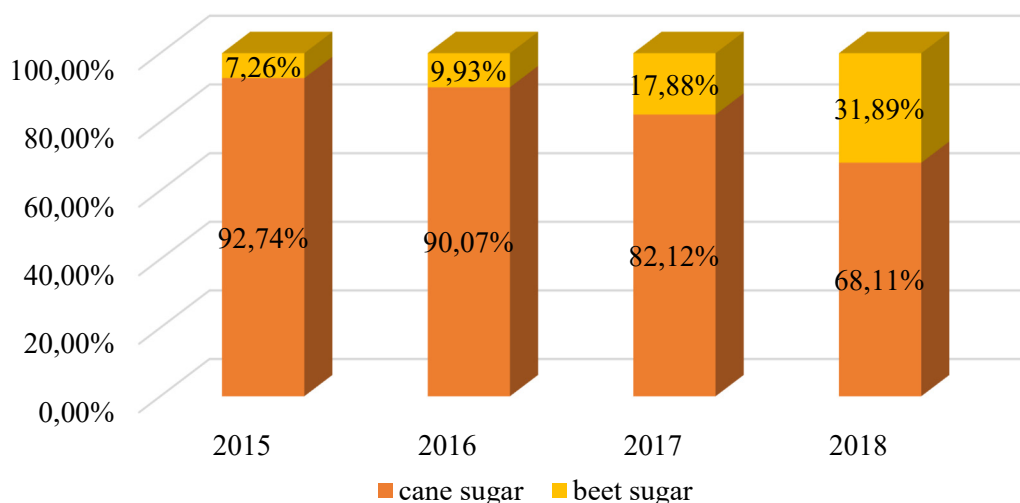


Fig. 1. Dynamics of sugar production by its main types, %

Source: author’s developed on the basis of [1].

In recent years, regarding the cyclical nature of sugar production and the decline in production volumes, there has been an increase in the specific weight of beet sugar production and a predominance of the specific weight of cane sugar production.

The study of the dynamics of acreage for sugar beet cultivation for the period 2015–2019, according to tab. 2, shows that their stable maximum share belongs to the following subjects of agricultural activity:

individual entrepreneurs; peasant farms. As of 2019, only 16,4 % of the area for sugar beet cultivation was accounted by agricultural enterprises (Partnerships, Joint-Stock Companies). In the period from 2016 to 2019, sugar beet acreage was eliminated in the system of household activities.

Table 2

**Sugar beet acreage by agricultural formations types in Kazakhstan, thous. ha**

Indicators	Years				
	2015	2016	2017	2018	2019
Agricultural enterprises (Partnerships, Joint-Stock Companies)	1,2	2,2	3,6	2,7	2,5
Individual entrepreneurs, peasant farms	7,9	10,4	13,9	14,7	12,6
Households	0,1	0,0	0,0	0,0	0,0
Total	9,2	12,6	17,4	17,4	15,2

Source: author’s developed on the basis of [2].

It should be noted that the reduction of sugar beet acreage in 2018–2019 is accompanied by a positive dynamic growth in the level of its yield. In the studied strategic period, the sugar beet yield increased from 232,5 centners/ha to 324,5 centners/ha. As of 2019, all agricultural formations have an average sugar beet yield of 324,5 centners/ha, while some agricultural formations have significantly exceeded the average sugar beet yield over the past three years. For example, in agricultural formations of Almaty region, in such districts as Eskeldinsky, Koksu, Karatal, Aksu and Sarkand, the yield reached 800 centners/ha (fig. 2).

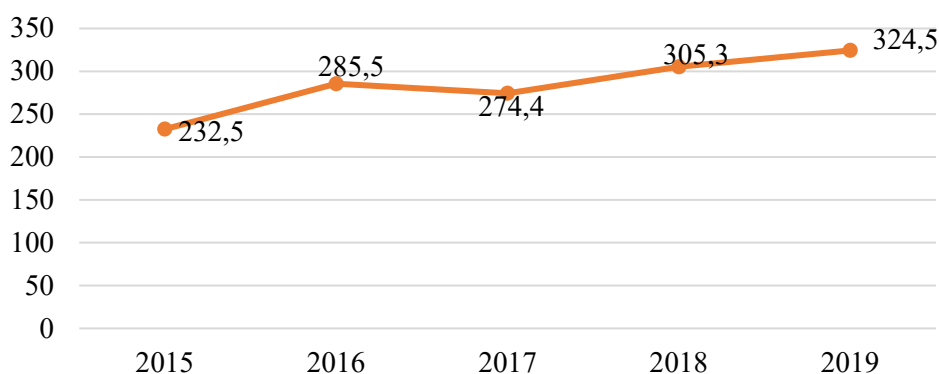


Fig. 2. Dynamics of sugar beet yield in Kazakhstan, centners/ha

Source: author’s developed on the basis of [2].

In complex terms, the dynamics of the total cost of sugar production decreases in a direct correlation relationship with the reduction of its production volumes. The production and economic activity of sugar industry enterprises is characterized by relatively low incomes, the maximum amount of which occurred in 2016.

Comparison of profits and costs of sugar industry enterprises allows us to assess the profitability of their production. Studies have shown that on average, the profitability of the production of white refined sugar in the period from 2015 to 2019 did not exceed 5,9 %, which does not correspond to the average normative (15 %) and minimum marginal profit indicators (10 %) for food industry enterprises (tab. 3).

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Assessment of profit dynamics of sugar industry enterprises, mln tenge

Indicators	Years				
	2015	2016	2017	2018	2019
Enterprises revenue	39 425	80 292	49 076	38 167	36 084
Cost of production	33 275	67 767	41 419	32 215	30 336
Value Added Tax	4 224	8 603	5 258	4 089	3 866
Profit	1 926	3 923	2 399	1 863	1 881

Source: author's developed on the basis of [1, 3, 4].

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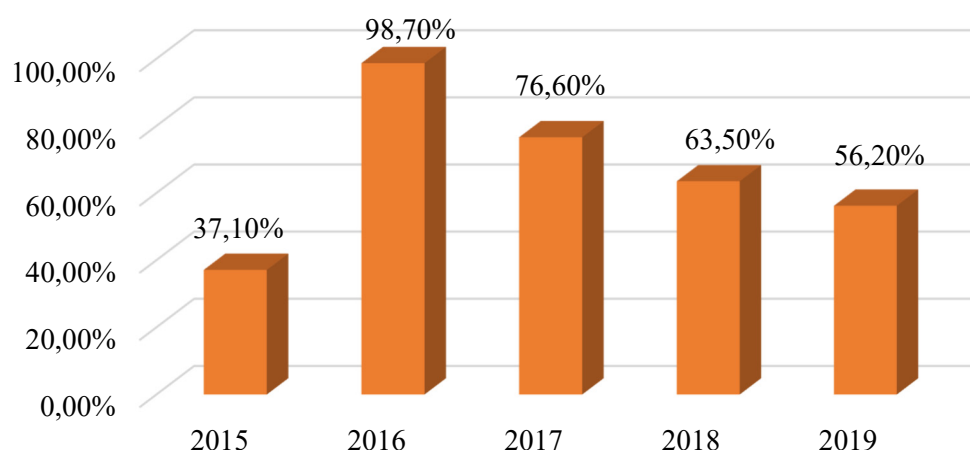


Fig.3. The use of sugar production capacities in Kazakhstan

Source: author's developed on the basis of [1].

The decrease in sugar production has led to a decrease in the level of use of production capacity by sugar industry enterprises. The maximum production capacity was used in 2016. During this period, enterprises reached the maximum volume of production of white refined sugar. As of 2019, the utilization rate of production capacity was 56.2 %. The failure of industrial enterprises to reach full production capacity is caused by their systematic, including seasonal, downtime.

Despite the importance of sugar beet production for the country's economy, there are still opinions about the apparent lack of competitiveness of sugar produced from sugar beet compared to sugar from imported raw sugar. The need to maintain a competitive domestic sugar beet production forces enterprises to engage in resource conservation, since this fully depends on the final financial result of the production and financial activities of all business entities that are part of the sugar beet subcomplex, starting with the seed production of sugar beet and ending with the sale of sugar.

The solution to the problem is possible only through achieving high quality of the produced seeds and root crops of sugar beet, sugar and expanding the range in accordance with the purchasing demand. In this connection, the main directions of increasing the competitiveness of the domestic beet sugar product subcomplex, in our opinion, should be the diversification of production, focused on expanding the range of products, the production of liquid sucrose, concentrated solutions of glucose and fructose, inverted syrups, resource conservation and greening (fig. 4).

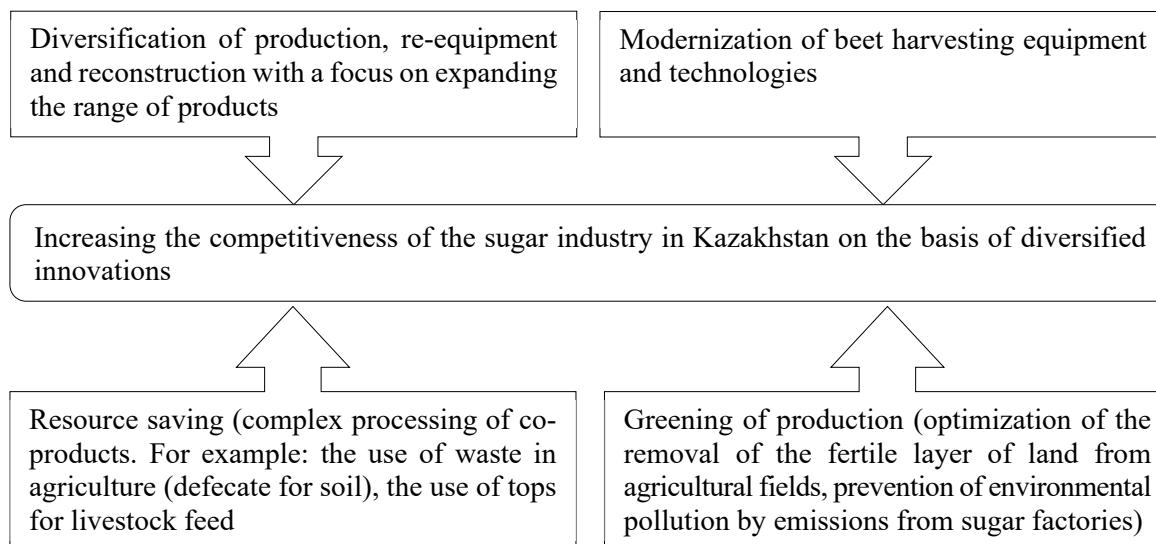


Fig. 4. Increasing sugar industry competitiveness in Kazakhstan on the basis of diversified innovations

Source: author's developed on the basis of [5–8].

*Conclusion.* Currently, to improve the efficiency of technical re-equipment of an industrial enterprise, technological standards regulating the production process are used. The active use of economic mechanisms for the sustainable development of sugar factories increases the relevance of the use of technological innovations as an incentive for the strategic development of an industrial enterprise.

Thus, the sugar industry, especially its beet component, requires close attention, both from the point of view of strategic management, and from the point of view of tactical modernization, improvement and increasing the stability of the functioning of its nature. In this, in our opinion, the primary role is played by an economically developed and well-founded policy of using scientific and methodological developments, which acts as a guarantor of the effectiveness of innovative measures.

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