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Development of Regional Meat Cluster as a Means to Raise the Competitiveness of Livestock Industry

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ABSTRACT

The objective of the paper is to study the theoretical and practical aspects of the development of integration processes in the field of meat production with the use of cluster model of the production process, as well as the formation of the ways to implement the potential and background of cluster formation in livestock industry of the Akmola Oblast of Kazakhstan through the formation of a cluster model. To achieve this, statistical methods of data collection, processing and analysis of economic information, mathematical modeling techniques have been applied. The system of parameters of efficiency of functioning of a regional meat cluster is represented herein. The mechanism of joining the subjects of livestock industry products in the regional cluster of meat specialization in one of the regions of the Republic of Kazakhstan – the Akmola Oblast – is introduced in the paper. Creating a cluster is one of the ways to solve the main problems of the livestock industry in the Republic of Kazakhstan. The main results of the review of foreign and domestic literature and the authors' own research on this topic are represented herein. A cluster model of the industry development has been formed, including the rationale for cluster members, the recommendations to promote the products of cluster enterprises to regional markets that improve the competitiveness of the entire livestock industry.

KEYWORDS
Livestock industry; meat production; the sector's competitiveness; regional meat cluster; breeding stock

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Introduction

Livestock industry development is one of the main strategic business problems of Kazakhstan, and it remains a major source of employment, food and income for the rural population.

Livestock industry production of the country is small-scale nowadays, which is the main reason for its poor competitiveness. The concentration of livestock in private farmsteads makes it difficult to use the achievements of selection, breeding and feeding progressive technology, makes it impossible to breed the

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cattle with the use of scientific methods and to achieve its high efficiency (Zhukenov, 2014).

Most small-scale private farms are unable to equip their farmsteads with relevant technical equipment, which negatively affects the quality of manufactured products. The state is unable to fully monitor all farms at once. This leads to small-scaling, and particularly affects livestock industry sector. Along with this, there is a problem with reproduction of animals. Thus, the high level of mongrel cattle population does not guarantee the high quality of products and a competitive position in the market (Kenzhebolatova & Okutayeva, 2014).

In addition, one of the reasons for the low efficiency of use of resource potential of agriculture of Akmola Oblast is the lack of schemes of industry priorities development, as well as underdeveloped internal and cross-sectorial cooperation ties. This is primarily due to the underdeveloped infrastructure of the territory used as a production resource base, which ultimately reduces its attractiveness for investment of private business funds (Galimova, 2007).

Many enterprises are not able to ensure the comprehensive development of the organization of production, and it does not allow for effective economic policies conducive to stimulate the use of energy– and resource-saving technologies in livestock industry. Therefore, the producers cannot achieve the reduction of production final cost, thereby losing their competitiveness compared to imported analogues (Usova, 2015).

In order to improve the regional policy of Akmola Oblast in the sector of livestock industry, it is appropriate to consider the mechanism of joining all participants involved in the regional cluster of meat specialization. Thus, the cluster-based economy is a model of a competitive and attractive-investment economy, providing a high level and quality of life and involving in the production process not only large companies, but also small and medium enterprises (Kiseleva, 2014).

The contribution of this paper in the development of world science is the development and presentation to the scientific community the author's vision of a regional meat cluster model on a specific field level in order to improve the competitiveness of livestock industry in the regional economics. Scientific and practical solutions of this work can be used in other regions of the world, in other sectors of economics, the development of which in the direction of clustering can be justified with the use of tools and author's research presented in this article.

Literature review

Despite the fact that the term "cluster" is increasingly being used in the economic literature of domestic and foreign authors (Migranyan, 2015; Myong-Hun Chang, 2015), its unique and strict definition has not been worked out. In this regard, there is a need to systematize the experience gained by the study of the cluster theory and to clarify the essence of the category of the "cluster".

Fundamentals of modern economic theory of cluster development dates back to the works of A. Marshall, who first addressed the issues of regional development and identified phenomena of specific industrialized regions (Menshenina, 2009).

The theory of "poles of growth" or "development poles" by Francois Peru takes a special place in the development of the theory of sectorial industrial clusters. According to Peru, development of each economic system is related to certain "poles", which due to their specific infrastructures become hotbeds of the country's economy (Mantayeva & Kurkudinova, 2012).

It should be noted that back in the 1970s to define clusters of enterprises in the space, the Soviet and Russian economic geographers A. P. Gorkin and L. V. Smirnyagin used the term "cluster", which was also used by Swedish business economists C. Fredriksson and L. Lindmark (Belova, 2012).

But the founder of the cluster concept is M. Porter. According to M.Porter, a cluster is an organizational form which, combining independent and informally linked companies and institutions, gets significant benefits due to high performance, efficiency and flexibility in the organization of activities of the participants (Namazbekov, 2005).

M. Porter defines clusters as "geographically concentrated groups of interconnected companies, specialized suppliers, service providers, firms in related industries, as well as related activities of their organizations (e.g., universities, agencies for standardization, trade associations) in particular fields that compete but at the same time work collaboratively" (Emelyanov, 2008). Table 1 summarizes the interpretations of the concept of a "cluster" by different scientists (Yekimova & Fedina, 2009).

Table 1. Definitions of the concept "cluster" by various scholars

Author	Definition
D. Jacobs	Cluster is a geographical or spatial association for implementing the economic activity, implying a horizontal or a vertical relationship as well as the use of common technologies, the availability of "core" and sustainable cooperation".
S. Rosenfeld	Cluster is geographically limited set of similar, related or complementary companies, with active channels for business transactions, infrastructure, labor market and services, which can get both the benefits of shared opportunities and shared risks.
C. Ketels	Clusters shall be created in a natural way, without taking any public officer decisions; top executives shall recognize that their individual success depends on the work of others, and by organizing together they can solve common problems
M. Porter	The organizational form, which, combining independent and informally linked companies and institutions, gets significant benefits due to high productivity, efficiency and flexibility in the organization of activities of the participants
A. Migranyan	Cluster is the concentration of the most effective and interconnected economic activities, i.e., a set of interrelated groups, successfully competing firms, which form the "golden section" ("diamond" in the Western interpretation) of the entire economic system of the state and provide a competitive edge in the industry, national and international markets.
T. V. Tsikhan	Cluster is a community of companies, closely related industries, mutually contributing to the growth of competitiveness of each other.

Source: based on the papers by L.G. Belova (2012); K.V. Yekimova & E.V. Fedina (2009).

Generalization of the theoretical aspects of cluster development theory and scientific views of scholars-economists and empirical clustering experience

allows to indicate and reveal the essence of a cluster (Snow & Fjeldstad, 2015; Soussana & Lemaire, 2014; Foray & Goenaga, 2013).

In our opinion, the most interesting is the theory of clusters in the works of the American Scholar M. Enright. He developed the theory of a regional cluster, giving the following definition: a regional cluster is the industrial cluster in which companies – members of the cluster are in geographic proximity to each other. Following Enright's theory, it can be concluded that the competitive advantages are created not at the national level, but at the regional; the main role is of the historical background of regions development, cultural diversity of business, organization of production and education. The regional clusters need targeted support from government institutions and research organizations (Khodzhaev, 2012).

Thus, the regional cluster is defined as the agglomeration of various companies, including the development of relations of cooperation and competition, as well as the exchange of knowledge, information and best practices (Georgiyev & Bencheva, 2011).

The objective of this research is to study the theoretical and practical aspects of the development of integration processes in the field of meat production with the use of cluster model of the production process, as well as the formation of the ways to implement the potential and background of cluster formation in livestock industry in Akmola Oblast of Kazakhstan through the formation of a meat cluster model.

Methods

To achieve the objectives, the statistical methods of data collection, processing and analysis of economic information, mathematical modeling techniques are applied.

The system of parameters of efficiency of a regional meat cluster performance is represented herein.

For companies that make up the core of the cluster, it is necessary to calculate the economic performance.

1. Production (volume): VP

2. Net value of products, tenge: Nv

3. Balance profit (growth, loss), tenge: Pr

4. Efficiency: $E = \frac{\Pr}{Nv} \cdot 100\%$

5. Annual average personnel engaged: $\overline{ЧЗ} \quad \sum_{i=1}^{n} c_i x_i \to \max \quad \overline{PE}$

6. Productivity: $P = \frac{VP}{\overline{PE}}$

7. Indices of enterprises competitiveness: I .

For enterprises that operate in a cluster, it is necessary to reveal the internal reserves of increasing the level of production. This can be obtained by applying the methods of economic-mathematical modeling. It is necessary, first of all, to set the optimal parameters for enterprises based on mathematical

models. Second, on the basis of special mathematical models, it is necessary to use science-based animal feed rations.

In the first case, the optimality criterion is the maximum profit at restricting conditions of production:

$\sum_{i=1}^{n} c_i x_i \to \max$, where x_i is livestock industry products manufactured for marketing, and c_i is market price for products.

In the second case, to compose optimal feed rations of animals, low cost ration index is taken as the optimality criterion:

$\sum_{i=1}^{n} c_i x_i \to \min$, where x_i is feed types, c_i is feed net value.

Within the analysis of the situation of the livestock industry in the region of the republic, we offer to use econometric methods for determining the factors which influence the formation of economic and statistical parameters. For example, we are primarily interested in production of beef in the area. This parameter is influenced by factors such as the number of livestock (cattle), feed production, animal weight gain, offspring output, etc.

We believe that identifying correlation factors one can determine the direction in which the enterprises shall improve their work, i.e., redirect their resources on those areas of production which are problematic in terms of scientific validity.

Data, Analysis, and Results

Considering the relationship of research in the scientific works of foreign authors the economic efficiency and competitiveness of livestock industry, it is necessary to note that most of the scientists think that in a globalized world only high quality meat products at low cost can successfully compete with world analogues. Considering the above, it can be stated that the strategic direction of raising the competitiveness of domestic meat production must be cost-effective production of high-quality competitive products based on implementation of the potential of enterprises using energy-saving technologies. An important factor in ensuring the competitiveness of the meat industry in any country (Johnston, 2014), including in Kazakhstan, is also a rational distribution in the regions sufficiently influenced by the following factors:

– Zonal features, directions and degree of specialization, availability of natural and cultivated pastures;

– Development of fodder production and the availability of additional sources of feed (food, sugar and oil extraction plants wastes)

– Creation of an effective market infrastructure of meat sales.

Analysis of cluster initiatives implemented over the past ten years in different countries shows that the high competitiveness of these countries is based on the strong positions of individual clusters, enhancing competitiveness and optimizing the management of the national economy.

Currently, the economic literature conditionally divided three centers of cluster development: North American, Western European and Asian, each of them having its own features (Table 2).

Table 2. International experience in clustering

Country	Clustering features	An example of a cluster
North American Region (the USA, Canada)	- Policy of small government intervention in the cluster development process; - Absence of formalized government policy on clusters; - Creation of a specific mechanism for the formation of clusters based on the interaction of universities, state government and business	- the USA: the "Silicon Valley" Tech park - Canada: biotech cluster, information and telecommunications cluster, high-tech cluster, multimedia cluster, winery cluster, food industry cluster
European countries	- Active methods of state intervention in economic development; - Signing cluster policy in policy documents, subject to approval by the European Parliament and legislative documents; - State policy of stimulating the development of ties between universities, research institutes and business and involving large foreign firms in knowledge and business centers;	In the EU, there are more than 2 thousand clusters which employ 38% of its workforce. - Finland – Nokia company; - Austria – Automotive Cluster Styria; - Germany – Chemistry and mechanical engineering; - France – Manufacture of food products, cosmetics; - Hungary – Construction, textile production, optical mechanics, food products, electronics, etc.; - Slovenia – Automotive Cluster of Slovenia.
Asian countries	- Active methods of state intervention in economic development; - Formation of international and cross-border clusters. - Priority to the most modern scientific and technical areas; - Active support of venture business and focus on the American experience in building a venture business.	- Japan – experience of Hokkaido - China – cluster policy is related to the formation of special zones of high-tech industries by the municipal authorities.

Source: based on the papers by E.I. Mantayeva, and E.V. Kurkudinova (2012); L.G. Belova (2012).

Taking into account the global experience, it is advisable to introduce in Kazakhstan a territorial self-governing organization of production based on horizontal integration development, creating favorable conditions for the functioning of all organizational forms of management, making it possible to achieve sustainable development of rural areas, by basing the principle of economic self-sufficiency. An effective way of the region to become self-sufficient is the cluster organization of production. It should be noted that the first cluster formations were born alone, and only then they have been provided with state support, and they achieved considerable success in the development of production and the territories in general. This confirms the theoretical assumption that there are only the structure and the directions of evolution in social life laid nature (Snow & Fjeldstad, 2015).

The world economy clusters act as "growth points" in the socio-economic development of territories. This enables them to compete in conquering new market segments. The cluster is one of the most competitive structures on the market due to the fact that the inter-sectorial principle, links between enterprises are the basis for the formation of the cluster type, which enables to:

- effectively develop production;
- reduce the risks of joint activities, and when they occur – distribute among all members of the cluster;
- greater access to external markets for products;
- reduce transaction costs;
- carry out large-scale research projects;
- minimize intra-competition (and ideally – to achieve its complete absence), etc.

The global experience shows that in the formation of the cluster type it is expedient to unite all those working on the creation of the final product (Johnston, 2014; Soussana & Lemaire, 2014).

Most often, the cluster does not act as a legal entity, but is only an economic concept. Its members interact mainly on the basis of long-term, stable contractual relations.

For the formation of cluster-type characteristic are (Foray & Goenaga, 2013):

- geographical proximity of its members;
- activities in one or more adjacent areas and complementarity with each other;
- high competitiveness of products;
- high level of co-operation;
- gaining and retaining customers in a competitive market;
- independence of the subjects included in the cluster.

For the livestock industry in Kazakhstan it is advisable to talk about the creation of specialized regional clusters as one of the options, and in the future – the interregional.

In Kazakhstan, the studies of many Kazakh scientists are focused on the issue of a cluster. A.A. Kuandykova (2009) considered the creation of a petrochemical cluster the main purpose of which is to increase the competitiveness of the petrochemical complex of Kazakhstan and its products, access to the world market, improving the efficiency of its contribution to the competitiveness of the national economy.

A.B. Baymukhanov (2010) offers a model of dairy cluster in the example of the East Kazakhstan Region. From the model it is clear that the core of the cluster are the main producers of milk and dairy products. Supporting organizations, including the administration, within the sectorial programs of the East Kazakhstan Region, implement pilot projects for the development of large-scale dairy farms, feed production, livestock industry, fattening complexes, agricultural cooperatives, etc. They contribute to the formation of the real background for the creation of a dairy cluster, the use of resource-saving technologies, high-performance equipment.

There is a complete background for the development of rice and cotton clusters in the South Kazakhstan Region. Thus, A.A. Rizakhodzhaev (2007), in his research determines the cluster-forming projects of the region. For example, the "Turan" cooperative (Turkestan) is essentially a model of cluster organization at the micro level. The initiators of the organization of the economy are the producers of raw cotton.

Thus, summing up the experience of the development of clusters, one can observe the economic effect of existing clusters, and the economics of Kazakhstan has the ability to learn from the experience of developed countries, taking into account the peculiarities of the development of the national economy and regional national markets.

The global experience shows that the productivity of enterprises in the cluster is 20-40% higher than in similar companies outside the cluster. According to the Harvard Business School, the clusters provide more than 32% of employment in the US economy, not including the public sector. The level of wages in the states in which the clusters operate is 29% higher than the national average. The share of US gross domestic product, produced in clusters is about 60% (Menshenina, 2009).

The competitiveness of the economy of the country depends on the development of agriculture, and the development of this sector is considered as one of the priorities of economic policy. The main objectives of agricultural development are: an increase of production volumes, improvement of quality and productivity in the agricultural enterprises and farms (Zhukenov, 2014).

Table 3 shows the number of cattle in the Akmola Oblast for 2010-2014.

Table 3. Livestock inventory in the Akmola Oblast for 2010-2014., thous.

Types of animals	Years				
	2010	2011	2012	2013	2014
Cattle	383	308	334.8	357.5	372.6
Horses	101.4	112.6	119.7	128.6	129.3
Pork	182.8	144.3	148.3	118.9	110.6
Sheep and goat	380.3	413.6	434.2	460.6	470.6

**Committee on Statistics of the Republic of Kazakhstan*

The total volume of gross output of agriculture is approximately 1/3 of livestock industry products. In terms of meat production of all types, the beef production is almost 50% as represented in Table 4 and Figure 1.

Table 4. Production of meat of all kinds of livestock and poultry in the Akmola Oblast for 2012-2014.

Livestock and poultry for slaughter, body weight, t	2012	2013	2014
	75 884.1	79 421.2	82 434.0
Cattle	35 523.5	37 847.0	39 469.3
Sheep and goat	7748.28	8195.82	8774.38
Pork	18 492.6	17 680.5	15 434.1
Horse	11 641.3	12 349.8	12 773.3
Poultry	2 448.4	3 321.3	5 955.6
Camel	5.4	2.8	3.6
Other animals	24.7	24.1	23.7

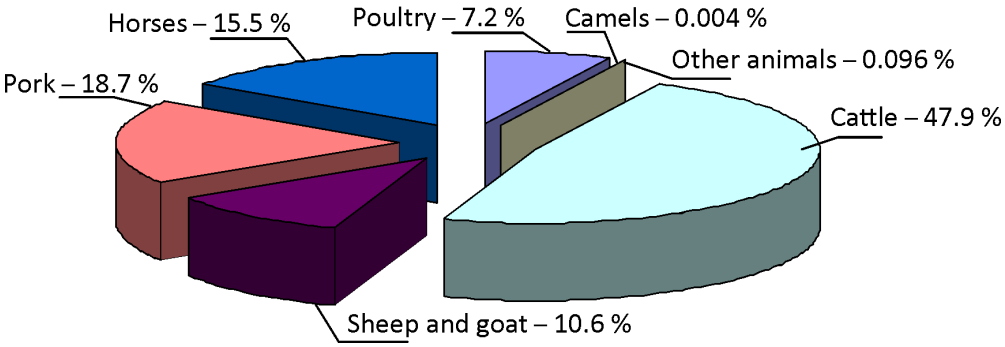

Figure 1. Cattle and poultry for slaughter in Akmola Oblast in 2014, live weight

Despite the fact that the share of meat production of cattle, i.e., beef, is more than other types of meat, beef meat production rates are almost the same as on other species. We see this as a weakness of beef producers. Therefore, the relevant enterprises need to increase the production rates united, working in the same cluster in which their activities would be under the supervision of the coordinating center.

In Akmola Oblast, there is a sufficient background for establishing a regional meat cluster:

– Geographic concentration and proximity: key players in the cluster, so-called core of the cluster – feedlots, feed mills, meat processing plants located in proximity to each other;

– Availability of the region's competitive advantages: favourable geographical position, access to raw materials, the availability of highly qualified human resources, specialized educational institutions and research institutes;

– Availability of competitive enterprises, export orientation of the industry;

– Active implementation of state programs for the development of export potential of livestock industry;

– Availability of markets: proximity to Astana and to the border regions of the Russian Federation.

The main purpose of the meat cluster in Akmola Oblast is to improve production efficiency by obtaining the maximum economic benefit through increased productivity of its member companies, increasing the capacity to innovate (Nagovitsyna & Davydov, 2015).

Creation of a regional meat cluster in Akmola Oblast is an alternative to the existing system of integration of agricultural producers, which has a number of disadvantages, as practice shows. This cluster accumulated efforts of all interested parties: business, science, agricultural producers, consumers and the state.

After reviewing and summarizing the scientific works of scientists-economists of Kazakhstan (Kuandykova, 2009; Baymukhanov, 2010; Rizakhodzhaev, 2007), it is clear that the authors propose their own model of a regional meat cluster. Recommended model of interaction between participants of the meat cluster shall join the companies involved a single process cycle from

raw materials to finished products, encourage close cooperation of agricultural, processing and service companies, engineering staff, scientists, state, etc.; protect the economic interests of each participant, ultimately, increase the manufacture of products and increase their competitiveness.

The composition of the meat cluster shall include enterprises directly involved in the production of finished products – meat and meat products. The companies engaged in the production of meat shall form the core of the meat cluster, namely agricultural producers who have feedlots in which the cattle are bred to slaughter weight, breeding plants and farms, meat processing plants (Figure 2).

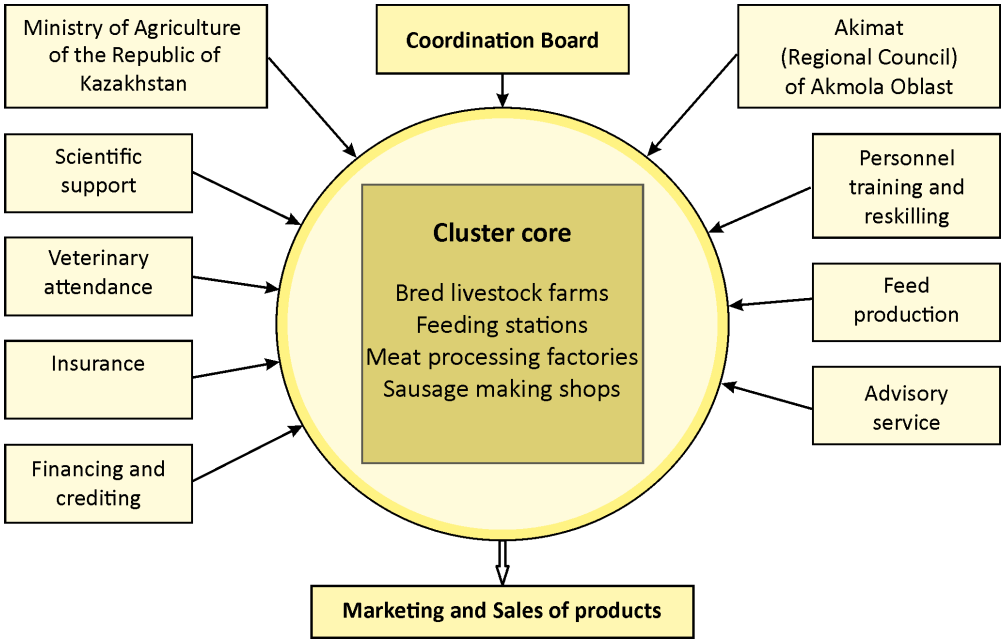

Figure 2. Scheme of the proposed regional meat cluster

The production flow sheet of cattle meat includes a number of stages (Rizakhodzhaev, 2007):

1. Delivery of pedigree cattle of foreign selection in breeding farms-reproducers. Production of offspring, which is divided into breeding stock for their own reproduction and breeding bulls to a breeding age (18 months).

2. Sales of breed sires for pedigree conversion of herd to farms in which the reproduction, breeding according to the "cow-calf" system up to 6-8 months and intensive breeding up to 8-12 months are held.

3. Sales of cattle for feedlots in which the intensive fattening up to 12-15 months is held.

4. Slaughter, cutting and packing in slaughterhouses and meat processing plants. Production and sales of meat.

Supporting industries of a cluster (cluster infrastructure) are the enterprises engaged in harvesting and production of feed, research institutes responsible for the development of new highly productive breeds of livestock, training centers, universities, financial institutions supporting manufacturers. As well as the state authorities which control the activity of the cluster.

Marketing and supply institutions of the business function according to orders and contracts with companies, organizations and businesses belonging to the cluster core.

The inclusion of all of these organizations in the cluster contributes to implementation of economic mechanisms of livestock industry regional policy and obtaining synergetic effect.

Meat cluster infrastructure consists of the following supporting organizations:

*Research institutes, universities***.** A mandatory condition for the functioning of the cluster shall be scientific support of production process. There are various research institutes, universities, centers in the Akmola Oblast. An example is the S. Seifullin Kazakh Agro Technical University which provides a systematic training and reskilling of personnel with the necessary qualifications, functioning of the needs and demands of cluster members. In addition, in Astana there is a "Research and Innovation Center of Livestock Industry and Veterinary Medicine" LLP, the aim of which is research work in the field of crop production, feed production, livestock industry and veterinary medicine. Organizations of scientific and educational infrastructure execute the orders cluster members on research and development activities.

*Financial and credit institutions***.** Financial support for agricultural producers is given by subsidiaries of "KazAgro" National Holding – "Fund for Financial Support of Agriculture" JSC and "Agrarian Credit Corporation" JSC.

The Veterinary service of the region operates as follows: the district departments of the Ministry of Agriculture and veterinary inspectors of rural districts are responsible for the organization, supervision and implementation of a set of activities developed by the Department of the Veterinary Medicine of the Ministry. The veterinary service of Akmola Oblast controls the quality of incoming slaughter meat for processing (Zhumagulova, 2009).

Rural Information and consulting centers. Since 2011, "Kazagromarketing" JSC participates in the "Development of cattle meat export potential" project. As part of the activities, the company provides consulting services to subjects of agro-industrial complex, including issues on obtaining loans through financial institutions of "KazAgro" Holding, holds industry expertise on projects implemented and carries out general monitoring and coordination of the project.

Formed regional meat cluster in Akmola Oblast can have an impact on the competitiveness in the following areas:

1) increase of labor productivity in enterprises of the cluster;

2) creation of a background for the development of innovation and economic growth;

3) filling the domestic market with meat products and access to world markets;

4) stimulating the formation of new businesses.

The next step is to design production flow sheet of a meat cluster in the region, create a system of intra-cluster relationships and interactions with the environment – users and customers of its products. These are the issues of further research of this topic.

Discussions

In Kazakhstan, the clusters can successfully develop in the areas where the competitive advantages of companies have formed based on the territorial distribution. In some regions, there are favorable conditions for the development of clusters in various sectors: there is a concentration of manufacturing companies, suppliers, organizations of scientific and educational complex; there is an active role of regional and local authorities which support the formation and development of clusters.

Some authors, for example, A.K. Zhumagulova (2009) offer a purchase scheme of raw materials to meat-processing enterprises by geographic location. This can save current costs, increase the production of meat products, improve quality and shorten delivery times to customers, and ultimately better meet the needs of the population.

A.A. Rizakhodzhaev (2007) considers that the creation of the cluster needs taxation, a significant expansion of funding sources for clusters.

Studies show that the models of industrial clusters mainly in other sectors of the economy have been offered before rather than for meat production.

The model of regional meat cluster offered herein is different by that it is necessary to include the coordinating center in the cluster (it is the control center). The work in the cluster shall be carried out in stages beginning with the annual (periodic) analysis of the development of livestock industry; then, at the level of enterprises, their potential shall be assessed involving the research centers.

The results of this study shall be interpreted in terms of the concept of rational distribution of production capacities. This can be achieved with the large-scale production of goods of mass demand, to which the meat is referred. In this case, a so-called "rising scale effect" appears, which is shown in the reduction of costs per production unit by deep specialization of labor of production and administrative personnel, reduction of transaction costs, expansion of opportunities to introduce organizational and technical innovation. The global experience, in this context, shows that the most socially oriented is the integration of agricultural production on a cluster basis, which provides conditions for the development of various sizes and legal forms of agribusiness structures based on collaboration and public-private partnership.

The reliability of the results of scientific research is determined by the reliability of the results obtained at each stage of the study and is confirmed by obtaining the known private research results (model clustering meat complex specific region) from the developed common scientific results (the rationale for clustering), as well as the clear interpretation of the results.

The reliability of the scientific results of the study is provided by the count of a reasonable number of factors influencing the solution of a scientific problem of a cluster model by the case study of meat cluster in Akmola Oblast of Kazakhstan. The paper contains reliable baseline data obtained by the results of theoretical and experimental studies, modern scientific approved method.

The site of research results obtained in the study in the structure of the knowledge known to mankind is determined by their contribution to the development of scientific approaches to the most effective use of determining objective factors for the development of meat production, which are food, socio-economic, resource and environmental factors. This study focuses on resource and socio-environmental factors, reflects the author's position with regard to their engagement in the process of clustering of meat production in a specific region. It may be interesting not only for Kazakhstan industry practitioners on the management level, but also for local scientists, as well as for researchers from other countries who can use scientific solutions of the paper for comparison with their results, the use of methodological tools, analytical information, conclusions of the author.

Conclusion

The article focuses on the mechanism of joining the subjects of livestock industry products in the regional cluster of meat specialization in Akmola Oblast, Kazakhstan. The creation of such cluster is one of the ways to solve the main problems of the livestock industry in the Republic. Studying the global experience of clustering allowed to define the concept of a "regional cluster", to describe cluster models offered by domestic and foreign scientists.

As a result, there have been developed a cluster model of meat regional cluster in Akmola Oblast, focused on improving the competitiveness of the livestock industry in the regional economy. This model involves the study of cluster members, recommendations for the promotion of products of the cluster enterprises to regional markets that improve the competitiveness of the entire livestock industry.

Formed regional meat cluster in Akmola Oblast can have an impact on the competitiveness in the following areas: productivity increase at the enterprises in the cluster; creation of a background for the development of innovations and economic growth; filling of the domestic market with meat products and access to world markets; stimulating the formation of new businesses.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

Baymukhanov, A. B. (2010) *Organization economic mechanism of development and operation of territorial-sectorial clusters in AIC*. PhD Abstract of Economic Sciences. Almaty, 20p.

Belova, L. G. (2012) Foreign experience of regional clusters formation as a competitive advantage of the "second nature". Russian Regions: strategies and mechanism of modernization, innovative and technology development. *The VIII International Science-to-Practice Conference Proceedings*, *2*, 35-46. 31 May – 1 June 2012. Moscow: INION RAN.

Emelyanov, V. E. (2008) *International business institutions*. Murmansk: Murmansk State Technical University Press. 88p.

Foray, D., Goenaga, X. (2013) *The goals of smart specialisation*, S3 Policy Brief Series №01/2013, EUR 26005 EN. Direct access http://ftp.jrc.es/EURdoc/JRC82213.pdf.

Galimova, M. (2007) Use of cluster approach in increasing of regional competitiveness of AIC products. *Agricultural Science of Kazakhstan News, 4*, 17-21.

Georgiyev, S., Bencheva, N. (2011) Regional cluster of peanuts. Plovdiv, Bulgaria. 326p.

Johnston, Tom. (2014) Appeals Court Denies Meat Lobby's Request for COOL Rehearing. Direct access: https://fas.org/sgp/crs/misc/RS22955.pdf

Kenzhebolatova, M. Sh. & Okutayeva, S. T. (2014, January-March) Analysis of the condition of the livestock sector in the Republic of Kazakhstan. *Issues of agricultural sector, 1*, 117-121.

Khodzhaev, Kh. Z. (2012) Cluster approach as a component economic development of the region. Tajik State University of Law, Business and Politics Bulletin. *Humanitarian Series, 4*(52), 23-45.

Kiseleva, A. A. (2014) Development of regional forestry cluster as the basis for ircreasing the sector competitiveness. *Perm University Bulletin, Series 3*(22), 52-57.

Kuandykova, A. A. (2009) *Efficiency of cluster formations in the Republic of Kazakhstan:* PhD Abstract of Economic Sciences. Almaty. 20p.

Mantayeva, E. I. & Kurkudinova, E. V. (2012) Global experience of cluster model development / Regional economics and management. *Electronic Scientific Journal*, 2(38), 34-42.

Menshenina, I. G. (2009) *Regional clusters as a form of territorial organization of economics*. PhD Abstract of Economic Sciences. Yekaterinburg. 20p.

Migranyan, A. (2015) Theoretical aspects of the formation of competitive clusters in countries with economies in transition. Direct access http://www.subcontract.ru/Docum/Docum-Show_DocumID_171.html.

Myong-Hun Chang, A. (2015) *Computational Model of Industry Dynamics, Advances in Experimental and Computable Economics Book Series*. London: Routledge. 426p.

Nagovitsyna, E. V., Davydova, Yu. V. (2015) Cluster development for raising the efficiency of dairy breeding in Kirov Oblast. *Scientific Review. Economic Sciences*, *1*, 131-131. Moscow.

Namazbekov, M. (2005) Cluster development within globalization: experience of foreign countries. *Analitik, 3*, 23-29.

Rizakhodzhaev, A. A. (2007) *Economic basis and the efficiency of cluster formation in AIC:* PhD Abstract of Economic Sciences. Turkestan. 20p.

Snow, C. C. & Fjeldstad, O. D. (2015) Network paradigm: Applications in organizational science. In J. D. Wright (ed.), *International Encyclopedia of the Social & Behavioral Sciences*, *16*, 546-550. Elsevier, Oxford, UK.

Soussana, J. F. & Lemaire G. (2014). Coupling carbon and nitrogen cycles for environmentally sustainable intensification of grasslands and crop-livestock systems. *Agric Ecosyst Environ, 190*, 9-17.

Usova, A. A. (2015) Method instruments of economic effect distribution in the system of strategic management of dairy sub-complex of AIC. *South Ural State University Bulletin. "Economics and Management" Series, 9*(2), 163-169.

Yekimova, K. V. & Fedina, E. V. (2009) Theoretical aspects of use of clusters in the development of competitive economics. *Ural Institute of Economics, Management and Law Bulletin, 2*, 48-58.

Zhukenov, B. (2014) Cluster Approach as One of the Methods of Development of Innovative Entrepreneurship in Agro-Industrial. *World Applied Sciences Journal 29*(4), 535-540.

Zhumagulova, A. K. (2009) *Increasing the competitiveness of meat-processing industry products of AIC:* PhD Abstract of Economic Sciences. Astana. 20p.