

Development of Interstate Clusters in the Agro-Industrial Complex of Countries-Members of the Eurasian Economic Union

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Abstract—In the last two decades, special attention in increasing the efficiency of production activity has been paid to geographical concentration. The interaction of suppliers and producers within the cluster associations allows to achieve a synergetic effect. This effect is provided by the advantages of deep specialization of enterprises, access to new technologies, the ability to use highly qualified specialists. The article discusses the possibility and feasibility of creating interstate clusters in the agro-industrial complex of the countries of the Eurasian Economic Union. Based on the study of the agricultural potential of the EAEU countries, the priority directions of the cluster development are determined: grain processing and production of feed additives. A model of the organizational structure of the cluster, which can be used in the interaction of subjects. The efficiency of the interstate cluster is manifested at the level of countries, industries and enterprises (organizations).

Keywords—The agro-industrial complex, countries of the EAEU, the interstate cluster, the production of feed additives, organizational model.

I. INTRODUCTION

The Food and Agriculture Organization predicts that by 2050, the world will need 70% more food than it did in 2006 to meet the needs of the growing population. For agriculture, this means a regular and constantly growing demand for agricultural products, as well as the emergence of a number of new challenges and fundamentally new requirements for the level of productivity in general (Sylvester, 2013).

In the last two decades, special attention in increasing the efficiency of production activity has been paid to geographical concentration, which is caused by the impressive growth of regional economies and the formation of production areas in many countries from the USA to Japan (Desrochers, 2004).

As the economic term characterizing these phenomena, Michael Porter's Harvard Business School introduced the concept of "cluster" (Hoffman, 2001). Unlike the notion of an "industrial district" introduced by Alfred Marshall (1920) at the turn of the 20th century, Porter's clusters are not limited to specific industries and products, but encompass many related industries and organizations that are important for increasing competition. In addition, a cluster has geographic coverage, which can vary from one city and region to several states (Porter, 2000).

In 2008, the first structured survey of regional and national cluster programs in Europe was held (European Commission 2008). More than 69 national and 88 regional programs were surveyed in 26 out of 31 European countries. Common to all programs are their justification for improving competitiveness of the national or regional economy by promoting cooperation between companies and the European Union stakeholders. As the experience of the EU shows, the development of cluster programs is an effective form of cooperation between member countries (Köcker and Müller, 2015).

In many integration associations, the interstate cooperation model is based on the joint development, first of all, of the agricultural sector and ensuring food security, and the practice of creating agro-industrial clusters is used (Kergel, Koehler etc., 2017).

In this regard, the experience of functioning in the of an economic union format for a relatively young integration association Eurasian Economic Union (EAEU, since January 1, 2015), can be borrowed from the former European Economic Community (EEC), formed in 1957, which was transformed in 1992 into the European Union (EU) - a political union (Archick, 2017).

The total EAEU consumer market stands currently at 170 million people. The prospective integration effect in the form of an GDP increase by 2030 is estimated at about \$ 900 billion. So EAEU can be assessed as a powerful economic, trade and political union (Sargsyan and etc., 2016).

II. RESEARCH METHODS AND MATERIAL

The methodological framework of this research was formed by general scientific methods of knowledge (dialectical, abstract-logic, structural - functional, analytical) and special (organizational-economic modeling, statistical) methods.

A promising development direction for EAEU in the areas of production, storage, processing and selling of agricultural products is the creation of interstate clusters. The main tasks of such clusters is not only the promotion of EAEU agricultural products to the world market, but also the maintenance of a steady level of producers' income by reducing fluctuations in world prices.

Attempts to selectively coordinate measures of agrofood market regulation by the state in the EAEU countries have been made several times. The Council for Agro-Industrial Policy under the EAEU Integration Committee (2012) approved the draft agreement on the organization and functioning of the grain market of EAEU member states. The idea of the "Grain Pool" of Ukraine, Russia and Kazakhstan, put forward at the World Grain Forum (2009) in St. Petersburg (Jadrailyev, 2010), was further developed (2013). However, Ukraine's participation in the EAEU today is being questioned by the prerequisites for the Grain Pool formation and its effective functioning in connection with their cooperation under the EU Eastern Partnership program based on the principles of a deep and comprehensive free trade zone.

In this regard, one of the directions in the interstate clusters formation in the agro-industrial complex of EAEU member countries can be forming of a transboundary cluster for deep processing of grain in order to obtain products with high added value.

The expediency of forming such a cluster is conditioned by the necessity of:

- meeting the internal needs of the Eurasian economic union countries in products of deep grain processing;
- further import substitution of deficient products of high added value (starch, gluten, glucose, glucose-fructose syrups, amino acids). For example, the demand for amino acids such as lysine, tryptophan, threonine, valine are almost completely met by import. During the period from 2010 to 2015, the import of amino acids increased by 2.2 times;
- intensification of animal production development in EAEU countries;
- effective use of grain surplus, especially in Russia and Kazakhstan;
- access to international markets for processed grain products with high added value;
- increasing the incomes of grain producers;
- development of rural areas of EAEU member states;
- economic growth acceleration in the countries of the Union, strengthening their global food security.

According to the preliminary assessment of the Information and Analytical Department of the Russian Grain Union, a typical project of such level is estimated at around 200 million euros. As it was noted at the coordinating meeting of the Eurasian Agricultural Technology Platform (2017), EAEU member countries are in dire need of investments aimed primarily at developing infrastructure, creating large assets, through the Eurasian transnational companies formation included, as well as equipment of production with high-performance equipment (Vinokurov, Demidenko, Korshunov and etc., 2017).

III. RESULTS AND DISCUSSION

Priority area for the development of the interstate cluster is the production of high-protein feed additives for animal production development in EAEU.

The results of the analysis of the scientific and production potential testify to the specialization of the member states within the oil and related industries, the rapidly growing demand for livestock feed and the relevance of import substitution.

The Republic of Armenia has the potential in the sphere of import substitution of the capacity of the domestic animal feed market (meat production in 2020 is expected at 104.3 thousand tonnes). Currently, imports of prepared animal feed and additives are at \$ 25.7 million (Urutyanyan, Yeritsyan and Mnatsakanyan, 2015).

The Republic of Belarus specializes in the production of livestock products (the potential is more than 1300 thousand tonnes of meat by 2020), the domestic market is experiencing a deficit of vegetable oils and protein products. The potential for own production of rape seeds is about 800 thousand tonnes (528 thousand tonnes of meal). At the same time, there has been no increase in acreage under this oil crop in the last few years.

All the rapeseed produced in Belarus is consumed domestically and most of it is processed, the main buyers are processors. The sale of raw materials mainly occurs in the first months after harvesting for agricultural producers lack storage capacity, which does not allow to take into account favorable price market conditions.

Due to climatic conditions, processing of rapeseeds in Belarus has acquired a strategically important character, the total capacity of factories exceeds 1 million tonnes of oil per year. But the amount of rapeseeds produced can only partially load the production, which means that some enterprises have to stand idle or purchase raw materials in the neighboring countries. Rapeseed is imported mainly from Russia or Ukraine due to territorial proximity. At the same time, the determining factor is the price conjuncture.

The bulk of the rapeseed meal (cake) produced is used in feed production due to the fact that in the last few years there has been an active increase in the production of livestock and poultry products in Belarus. Import of oil cakes and soybean oil residues is \$ 114.3 million (2016), of other vegetable oils - \$ 121.8 million. Export of prepared feed is \$ 53.3 million (Medvedeva, 2016).

Cultivation and processing of oilseeds in the Republic of Kazakhstan are quite promising for development and investment. Every year the crop acreage under the main oil-bearing crops is increasing. An important factor is governmental support, which is of interest to producers. In 2016 the gross harvest of oilseeds was 1.9 million tonnes, which is 0.4 million tonnes more than in 2015 (or 27%). In comparison with 2006, the production of oilseeds increased more than 4-fold. First of all, this is due to the fact that oilseeds have become export-oriented products (Sheikin, Shinkeyeva, 2015).

In 2017, about 2.1 million hectares were planted with oilseeds, the main crops were sunflower, rape, safflower and flax. The production capacity of existing plants is 1740 thousand tonnes of oil per year.

Within the state program for the comprehensive modernization of the production and technological infrastructure of the

fat-and-oil and feed industries of the Republic of Kazakhstan "Oil – Fat - Combined feed-2020", 5 new plants with the capacity of 1550 thousand tonnes of oil per year are being built (FAO, 2017).

The Kyrgyz Republic is a potential consumer of high-protein feed additives (in 2020 meat production is expected at 230,000 tonnes) and it has the potential for cooperation in the agroindustrial complex. Fodder and additives worth \$ 6.9 million are imported for the livestock production (Mogilevskii and Chalbasova, 2015).

In 2017-2018 the Russian Federation plans to harvest 10,850-10,900 thousand tonnes of sunflower, 3220-3250 thousand tonnes of soybeans, 1200-1220 thousand tonnes of rapeseed. The oilseeds processing capacities make up 17.7 million tonnes and are loaded by 77.5%. The import of prepared animal feed and additives is \$ 770.4 million (2016), including soybean meal for \$ 96.9 million. Export of prepared animal feed is \$ 945.2 million, including soybean oil residues - 201.6, other types of oils - \$ 269.7 million. Potential for the produc-

tion of oil crops is 14 million tonnes, including sunflower - 10.9, soybeans - 3.3 million tonnes (Surinov A. etc., 2016).

The solution of the problems indicated and the use of each country's possibilities within the interstate cluster will make it possible to form the EAEU specialization based on the conditions for rational use of the accumulated competencies and natural advantages of the member states, to agree on a common paradigm of state support and regulation of the agricultural sector, set target indicators for the development of the agricultural market within a common agricultural policy.

The proposed organizational structure of the interstate cluster for deep grain processing and the production of feed additives is presented in Figure 1. The cluster can include the following subjects: cluster development coordination center (cluster council); scientific organizations and educational institutions of member states, experimental stations and seed farms; grain and oilseeds producers; fat-and-oil industry enterprises, feed and feed additives producers; livestock products producers; marketing infrastructure subjects.

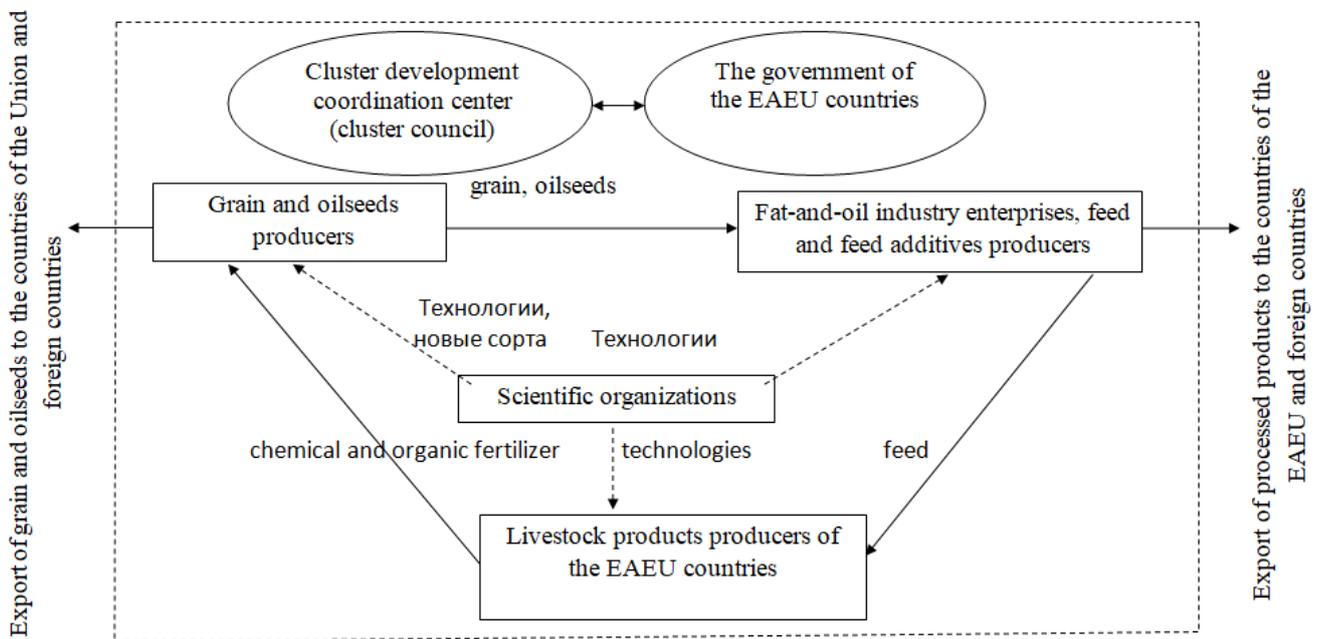


Fig. 1. Organizational structure of the interstate cluster for deep grain processing and the production of feed additives.

IV. CONCLUSION

Thus, the effectiveness of interstate clusters in the agroindustrial complex of the member countries of the Eurasian Economic Union will be ensured in the following areas and levels:

1) economic:

- the effect for integration on the EAEU scale in the form of reducing obstacles in the capital flow, goods, labor and services in several related industries will be achieved through coordination of the participants interests for effective strategic interaction;

- import substitution within the EAEU, which will be achieved through centralized coordination of scientific and production activities and rational use of potential;

- export potential fulfillment of EAEU member states agroindustrial complex in the markets of third countries through the use of a joint marketing infrastructure;

2) related industries:

- development and strengthening of the competitive environment through the use of the advantages of the international division of labor and the formation of growth points in the EAEU agribusiness;

- favorable conditions arrangement for investments attracting;

3) economic entities:

- additional opportunities for building competitive advantages and forming an innovative development strategy;

- efficiency improvement through supply and sales activities optimization.

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