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CLUSTERING OF WINEGROWING AND WINEMAKING INDUSTRY AS AN EFFECTIVE FORM OF MANAGEMENT

ABSTRACT

The article presents innovative approaches to clustering winegrowing and winemaking enterprises as an effective form of management. The purpose of the study is a detailed and systematic consideration of the current issues of clustering of the winegrowing and winemaking enterprises; substantiation of the creation of a cluster in the cross-border region of Ukraine-Moldova as one of the perspective directions of external restructuring.

The methodological basis is studies of the national and foreign scientists in the field of enterprise restructuring, laws and regulations of Ukraine. The following general scientific technique and research methods were applied in the study and analysis of the problematic issues of the article: logical - to clarify the concept of «cluster», «clustering», comparative assessment - in the study of modern approaches to clustering; statistical analysis - in determining the problems, trends and prospects for the development of winegrowing and winemaking enterprises. Various approaches to defining the essence of clustering are presented, which are expressed in the papers of national and foreign scientists.

The author substantiates the creation of a cluster of winegrowing and winemaking enterprises in the cross-border region of Ukraine-Moldova. The availability of approaches to the definition of clustering, and their generalization, revealed that the cluster of winegrowing and winemaking enterprises is a voluntary association of existing wineries and established specialized enterprises and units, research institutions that are united by the common goals of preparation and processing of wine=making secondary raw materials, the synergy of the interaction of which participants will ensure the scale effect and enter competitive markets of products derived from winemaking secondary raw materials.

The creation of a cluster of winegrowing and winemaking enterprises in the cross-border region of Ukraine-Moldova will increase the innovation and investment activity of the business and will serve as a catalyst for the integration of Ukraine and Moldova into the European and world space.

Keywords: cluster, clustering, winegrowing and winemaking industry, grapes production, the organizational structure of the cluster, cross-border region of Ukraine-Moldova, innovative technologies for grape production, innovative waste-free technologies, winemaking secondary raw material processing

JEL Classification: L23

INTRODUCTION

The winegrowing and winemaking industry is one of the leading and most promising branches of the food industry of Ukraine, which has great potential for development. Today, the winegrowing and winemaking industry is going through the most difficult period in history and needs a balanced and systematic management policy. Ukraine has sufficient capacity for the development of the industry and production of quality products, but in recent years the Ukrainian winemaking industry is losing growth in production and sales. A significant reserve for reducing the cost of wine in Ukraine with an increase in the competitiveness and profitability of wineries is the efficient use of grapes

through the introduction of waste-free technologies, which is seen as a strategic direction of rational use of the limited natural resources and environmental protection. The main factor is the desire on the one hand to mitigate the impact on the environment, on the other hand, to get additional new products. This trend is especially relevant in the industries involved in the processing of agricultural raw materials, because in this case the production waste is of biological origin and can be source material for the production of feed, and in some cases, foodstuffs.

The application of modern technologies in the making of wine from grapes makes it possible to generate from 15 to 22% of secondary raw materials [17]. The development and introduction of innovative technologies for processing secondary raw materials in the wine production industry is an important scientific and practical issue, as it allows receiving products with high biological and consumer value, representing significant interest for a number of sectors of the economy.

In the conditions of crisis phenomena, the cluster association of the winemakers will make it possible to solve existing problems of processing the winemaking raw materials. Particular attention should be paid to the preconditions for the formation of the Ukraine-Moldova cross-border cluster. The integration of Ukraine and Moldova into the world economic space is accompanied by fierce competition in the international wine market. The clustering of winegrowing and winemaking enterprises will enable: to achieve high profitability of manufacture of the innovative products from winemaking secondary raw materials; to increase the innovation and investment activity of the wine business; to increase international competitiveness and will serve as a catalyst for countries for the integration into the European and world space; to obtain a synergetic effect in various sectors of the agro-industrial complex, in particular, in the field of winegrowing and winemaking of the Ukraine-Moldova cross-border cluster. The foregoing determines the research rationale.

LITERATURE REVIEW

The scientific papers of domestic academic economists are devoted to a wide range of problems of clustering of enterprises [3; 20; 23; 24; 28]. The scientists [13; 29], studied the restructuring of the wine production companies as a tool to manage their development, the direction of increasing the competitiveness of wine industry enterprises. The scientists [14; 19; 22] consider the innovative support of the restructuring process as a factor in the economic growth of the wine industry enterprises. The problems of creating a production-scientific-educational cluster for the processing of secondary raw materials of winemaking in the cross-border region of Ukraine-Moldova were studied by individual scientists [11].

The thesis paper by Karpinska who developed options and schemes for restructuring wine industry companies in accordance with the stages of their life cycle and basic development strategies, and substantiated the economic feasibility and efficiency of restructuring of wineries through the creation of a cluster of winemakers in Odessa region, deserves special attention [13]. Co-authored with Lazarieva, Karpinska proposed a pilot project on the creation of a cluster of winemakers in the Odessa region, using cluster analysis and assessment of the synergetic effect [15].

A team of authors [12] presented a new scientific approach to the formation of a cluster of industrial enterprises, which will enable better implementation of the potential and increase in the competitiveness of both individual enterprises being a part of a cluster, and production complex.

The scientists [11] studied the importance of the regional clusters for the potential of the economy and the comparative economic benefits of their formation and development.

Topical issues of enterprise clustering in eco-industrial parks have been studied by scientists in an article [5] The researchers conducted a factor analysis of the impact on cluster formation and proved that the formation and development of eco-industrial parks along with economic indicators will improve the industrial environmental performance. Academic economists [1] studied the process of eco-industrial cluster designing by integrating the circular economy and industrial ecology perspectives.

Of particular note is the research by Dressler M., Paunovic I., who conducted a two-stage cluster analysis, which made it possible to obtain a typology of branding strategies of the German small and medium-sized wineries and assess the main forecasts of brand orientation [8].

Currently, one of the main tasks in ensuring the productivity of processing industries is the use of secondary resources. The rational technology of processing the viticulture and wine industry's secondary raw materials will make it possible to obtain products of significant value for a number of the national economic sectors. Many scientific studies have been devoted to this problem [2; 4; 6; 9; 10; 16; 21; 25; 27].

AIMS AND OBJECTIVES

The purpose of the study is a detailed and systematic consideration of the current issues of clustering of the winegrowing and winemaking enterprises; substantiation of the creation of a cluster in the cross-border region of Ukraine-Moldova as one of the perspective directions of external restructuring.

METHODS

The methodological background is research by domestic and foreign scientists in the field of corporate restructuring, legislative and regulatory acts of Ukraine. The following general scientific technique and research methods were applied in the study and analysis of the outstanding issues of the paper. The logical method is a method of theoretical reproduction of a historical object in all its essential properties and development of a complex object (system) by means of theoretical analysis. The logical method was applied to clarify the concept of «cluster», and «clustering». The comparative evaluation method was reflected in the study of modern approaches to clustering. The method of comparison is based on a universal logical method of cognition, by means of which the equality or difference of the studied objects and phenomena is established based on a certain typical feature by comparing them. On the basis of the comparison, which is applied simultaneously with other techniques, the patterns of clustering of the winegrowing and winemaking industry companies are established, as well as the advantages of the cluster formation in comparison with the traditional grouping by branch or types of production activity. Statistical analysis is the process of studying and comparing the obtained digital data with each other and with other data, their generalization. The statistical analysis was applied to determine the problems, trends, and prospects for the development of winegrowing and winemaking industry companies. According to the data of the State Statistics Service of Ukraine, the area of vineyards and the production of grapes in Ukraine for 2007-2019 were analyzed, and the problems of winegrowing and winemaking were identified. The application of graphic methods is considered a rather important and effective tool of modern economic science, they have firmly entered the methodology of scientific research. The application of these methods played an important role in writing a scientific article. These methods play an especially important role in statistical studies of the winegrowing and winemaking industry, where complex interrelationships of socio-economic phenomena are studied. The organizational structure of the Ukraine-Moldova cross-border production-scientific-educational cluster for processing winemaking secondary raw materials is depicted using a graphic method.

RESULTS

1. Background of study (analysis of the industry).

The winegrowing and winemaking industry belong to the strategic branches of the agro-industrial complex of Ukraine, which provide significant revenues to the state budget. The winemaking industry with great potential capacities, significant human, technological and scientific potential, is going through the most difficult period in history. Adverse political and economic factors, the development of integration processes in conditions of low competitiveness of domestic winegrowing and winemaking enterprises, are accompanied by significant socio-economic challenges that inhibit the processes of economic development of Ukraine.

Ukraine has sufficient potential for industry development and the production of quality products. But the winemaking industry has a significant number of problems that hinder its effective development and functioning. The unsatisfactory financial and economic condition of wineries is associated with negative phenomena, such as reduction of vineyards; reduced economic efficiency of wine production; disproportion of the quality of the raw material base and the needs of wine production; aging of vineyards, shortage of table and technical varieties of grapes; reduction of grape wine production against the background of the general increase in alcohol consumption; little state support for the industry; deterrent tariff and non-tariff measures [14; 19].

The reduction of vineyards in Ukraine causes a mismatch between the need for the production of raw materials and the capabilities of the raw material base (Figure 1). While in 1985 there were more than 200 thousand hectares of grape lands in Ukraine, today we barely cross the figure of 30 thousand hectares.

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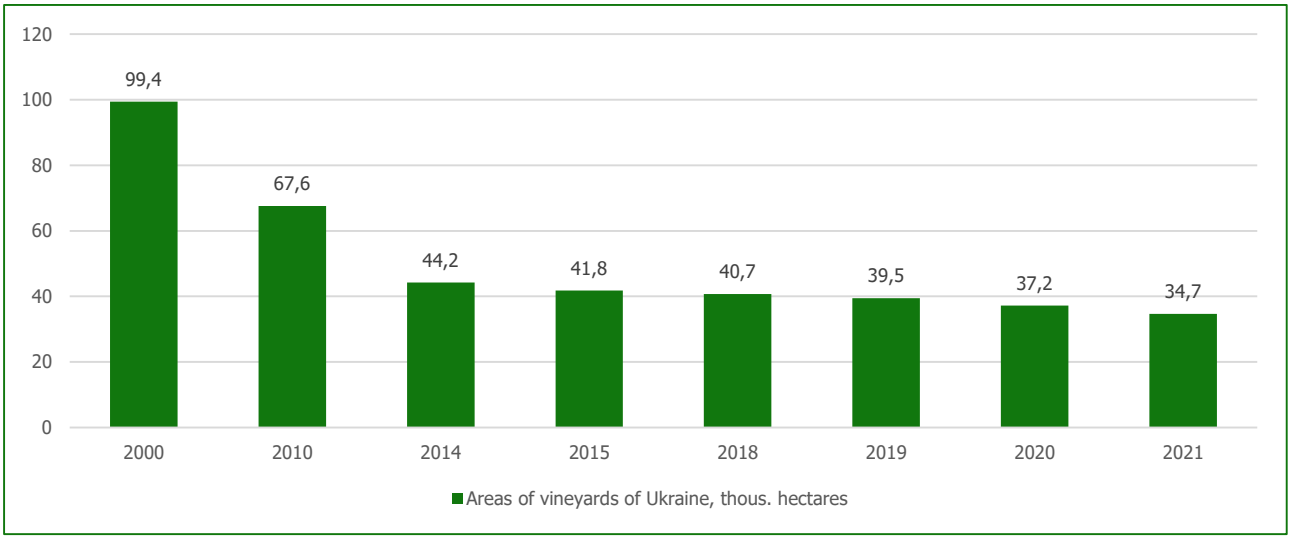

Figure 1. Areas of vineyards of Ukraine for 2000 - 2021, thousand hectares. *(Source: compiled by the author according to the State Statistics Service of Ukraine).*

Despite the fact that in terms of reducing the area of vineyards grape production increases due to raised intensity and improved organizational and economic factors of production, the need for wine materials is not fully met, so the wineries are forced to import wine materials (Figure 2). Today, it is necessary to gradually reduce the import of wine materials with the simultaneous development of the domestic raw material base through the introduction of innovative technologies for grape production, increasing yields and improving product quality.

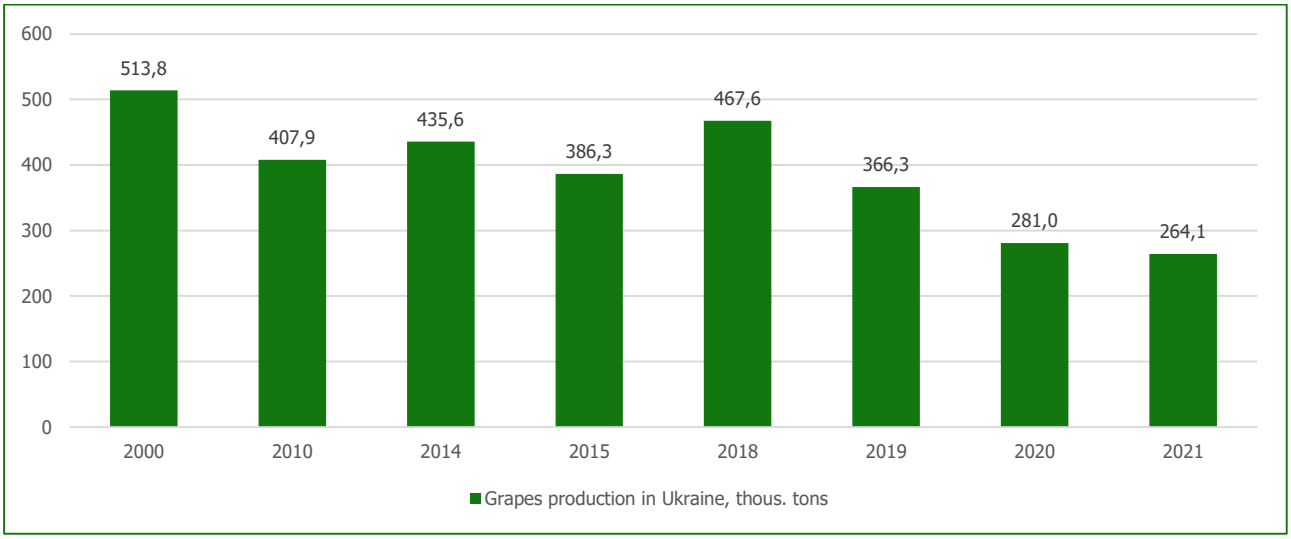

Figure 2. Grapes production in Ukraine for 2000 - 2021, thousand tons. *(Source: compiled by the author according to the State Statistics Service of Ukraine).*

Ukraine's integration into the world economic space is accompanied by fierce competition in the wine market, which necessitates improving the quality of wine products and reducing their cost. Innovations are now becoming one of the main factors in forming the effective development of wine industry enterprises. The wine industry is characterized by two types of innovation activities that are directly related to the production cycle, namely technological and production. These types of innovations have a significant impact on the quality and range of products. The third type of innovative activity is introduced at wineries - the provision of specific services, characterized by the interaction of different stages of the production cycle. In this direction, the innovative activity is understood as the development and implementation of innovations, purposeful struggle for the consumer, the search for capacity development, and the formation of enterprise competencies [22].

The innovative way of the Ukrainian winemaking industry development is associated with significant difficulties, among which the main ones are the high level of risk and the corresponding difficulties in finding sources of financing. The

innovative development of winegrowing and winemaking enterprises requires the mobilization of all possible resources. An important strategic direction of the winegrowing and winemaking industry development is the efficient use of grapes through the introduction of innovative waste-free technologies, which is considered a strategic direction of rational use of the limited natural resources and environmental protection. Particular attention should be paid to improving the winemaking secondary raw material processing. The rational processing of secondary raw materials will make it possible to obtain products representing significant value for a number of sectors of the economy. These are ethyl alcohol, tartaric acid, ergotamine, grape seed oil, bioconcentrates of B group vitamins, D vitamin, feed, abrasives and many others. The anatomical features of the grapes, as well as modern economical technologies for their processing into wine materials, cause the fact that the winemaking secondary raw materials in terms of the content of the biologically active substances are superior to raw materials and wine. With rational processing, it is possible to obtain products that represent significant value for a number of industries: food, pharmaceutical, perfume and cosmetics, etc.

In order to effectively solve the existing problems associated with the complex processing of winemaking secondary raw materials, it is necessary to unite the wineries in specialized clusters, including enterprises of different activities (growing grapes, their industrial processing, production of wines and distillates, processing of valuable secondary raw materials: seeds, distillates, yeast sediments, skins, tartrate salts, etc.). The concept of waste-free production is based on the principles of systematization, the complexity of resource use, cyclical material flows, and limiting the impact of production on the environment and social medium.

2. Theoretical aspects of clustering in winemaking.

In order to increase the international competitiveness of winegrowing and winemaking enterprises, it is necessary to restructure these enterprises. Restructuring a winery is a set of financial and economic, organizational and legal measures aimed at updating the structure of the enterprise and management, finance and production, business legal form of activity, achieving the goals of bringing the winery out of crisis and improving its financial and economic condition, creating unique competitive benefits and increase in its market value. Particular attention is paid to a kind of external restructuring of enterprises such as the creation of an integrated structure - a regional-sectoral cluster.

In modern conditions, clustering is considered a promising organizational form of management of winemaking secondary raw materials processing. The creation of a cluster as one of the promising areas of the institutional transformation of the domestic agro-industrial complex in terms of limited funds for the support of the wine industry, above all, is one of the competitive sectors of the economy, especially in conditions of the European integration and fierce competition.

The cluster approach is widespread in the world, and the range of its application is multifaceted. One of the most striking examples of the economic clusters in the world economy is Silicon Valley in the United States. In total, there are about 300 clusters in the United States: more than 240 regional and about 50 clusters formed solely due to the proximity to natural resources. Clusters operate and are actively formed in many developed European countries: Great Britain - Yorkshire and Humber Bioscience Center, Germany - Munich Biotechnology Cluster, France - Sophia Antipolis, Finland - Nokia. In China, there are more than 60 special zones - clusters, which unite about 30 thousand companies with 3.5 million employees and sales of about USD 200 bln. [28]. In the EU countries, the cluster strategies are either part of a national strategy to increase competitiveness or part of a regional program to stabilize regional development. The implementation of the cluster strategy in European countries is carried out at the national, regional and local levels. There is a growing trend for cooperation between national ministries (agencies) that support cluster strategies, while regional agencies implement them.

Let's consider the theoretical aspects of clustering. A cluster is a geographically concentrated group of interdependent companies, specialized suppliers, service providers, firms in relevant industries, as well as organizations related to their activities, which in certain respects compete, but generally, conduct joint activities [20]. The cluster approach to the development of the territory practices a modern view on the economy as a multisectoral set of different economic entities involved in creating a group of products of a particular industry. And cluster education is not just the totality of its individual components. Therefore, M. Porter came to the conclusion that clusters are consistent with the very nature of modern economic competition better than industry structures, and therefore they are cost-effective.

According to the scientists A.I. Borodin and M.N. Kochuguyeva, the «cluster is a group of territorially localized enterprises focused on comprehensive satisfaction of consumer demand and increase in the competitiveness of the region in the world market … cluster is a community of economically closely related and closely located firms of the corresponding profile, mutually contributing to the overall development and growth of each other's competitiveness» [3]. Mostly, these are informal associations of large leading firms with many medium and small enterprises, creators of technologies focused on

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similar consumer segments within a single chain of product promotion, concentrated on a limited area and implementing joint activities in the production and supply of certain types of products and services.

S.B. Solsky concluded «that from an economic and economic-geographical point of view, the clusters are geographically concentrated groups of interrelated companies, specialized suppliers, service providers, and firms in related industries, as well as organizations related to their activities (universities, standardization agencies, trade associations) in certain areas that compete, but at the same time conduct joint activities» [24].

On the basis of the above, the author emphasizes his view on defining a cluster, namely as a geographically concentrated group of competing companies that produce a differentiated product but pursue a common strategy outside the region and determine the vector of development of the institutions in a given geographical area.

Consideration of the economy from the standpoint of clusters has a number of advantages over traditional grouping by industry or type of production activity:

- clustering of the economy does not contradict the theory of competition, according to which each member of the cluster acquires its own competitive advantages, which does not contradict the sectoral approach where the intra-industry competition is ignored or becomes a monopoly.
- within the cluster, the production (commercial) relations achieve a higher degree of efficiency due to the speed and timeliness of information about technological features, customer satisfaction, successful marketing solutions, and problem counterparties. In addition, in clusters, individual adaptation is highly expressed, which is demonstrated in the minimization of competition at orientation on concrete market segments. Finally, due to this feature, the clusters significantly increase internal productivity, and efficiency of attracting and using innovations, including in the context of local regional development, as well as increasing the international competitiveness of the region.
- commonality of the conditions of regional development and international competition, threats and opportunities for growth enable the cluster members to form similar development strategies based on cooperation and ensure the interaction of companies inside and outside the cluster with government agencies and other market infrastructure institutions. Such interaction has a beneficial effect on the cluster members due to the joint use of infrastructure and the results of public and private investments allocated to a corresponding region.
- clustering in the structure of an industry can reduce the level of corruption - ordered lobbying of industries, preferential subsidies and reduction of tax pressure. There is no irrational distribution of investments and targeted financing, which can distort the market structure.
- absence of direct rivalry of cluster members with each other does not weaken it towards external competitors, reducing the intensity of production and business activity; the enterprises are not afraid to weaken each other and strengthen competitors [3].

The cluster approach increases the efficiency of economic policy implementation through two mechanisms. Firstly, it emphasizes the issues of increasing the competitiveness not only of individual enterprises but of the entire technological chain, including suppliers, associates, research and educational organizations. Secondly, the cluster approach involves the effective use of public-private partnership mechanisms, emphasizing the state's support of projects based on the needs of the business itself, promoting its self-organization, identifying «bottlenecks», overcoming of which is most important for economic competitiveness [24].

Thus, the cluster approach stimulates the support of collective projects related to the development of innovation infrastructure, mechanisms of lifelong learning, and promotion of domestic and foreign markets for goods and services.

The President of the International Fund for Agricultural Development of Ukraine, S.I. Sokolenko, notes that for the Ukrainian economy, «clusters create a unique basis for the development of innovation, increasing productivity and profitability of the small and medium enterprises. The clusters are a true child of globalization, increasing the role of regions in the creation of a basis for the inflow of foreign investment, training a wide range of entrepreneurs and strong development of small and medium enterprises, increasing flexibility and mobility of companies, creating a wide range of network structures. The clusters also act as forms in which there is a dialogue between business, government, academia on ways to develop competitive advantages within the city, province, state, country and even at the supranational level» [23].

The author believes that Ukraine has significant potential for clustering the economy, the implementation of which will increase the competitiveness of Ukraine and its individual regions. But the restraining factors for the formation and development of clusters in Ukraine at present are: insufficient regulatory and legal support for the creation of clusters in Ukraine, insufficient program target support of clustering strategies, insufficient level of planning decisions on territorial economic development, low quality of business management, the insufficient interest of small and medium enterprises to unite in

large production systems, low investment attractiveness of regions, low quality of business management, lack of orientation of many enterprises towards the international market.

After all, the cluster approach to reforming the industrial policy of the region, by which the concentration of scientific and production potential increases, cooperation relations are established, and the international competitiveness of the regions significantly increases, makes it possible to find new opportunities to increase productivity in the industry while maintaining intra-cluster competition, promotes business using human resources and infrastructure of the territory, opening access to research and recommendations of research centers, resulting in reduced costs, and ensuring access to new markets. The studies of industrial development, taking into account the theories of clusters, have demonstrated that effective clusters are built on regional features that become sources of competitive advantages.

The clusters and network Internet technologies are effective tools for achieving the main goal of organizing low- and zero-waste production of the integrated use of raw materials and energy resources, cooperation of the enterprises which have secondary raw materials with enterprises that use such raw materials. At the same time, regardless of the features of the capitalization process within the cluster, the cluster interaction provides the participating companies with a number of advantages that can be grouped as follows: productivity, innovation introduction, business initiative activation, development of effective communications and dissemination of information.

3. The organizational and economic features of the formation of the cluster in the cross-border region of Ukraine-Moldova.

The integration of Ukraine and Moldova into the world economic space is accompanied by fierce competition in the wine market, which necessitates improving the quality of wine products and reducing its cost. Currently, in Ukraine, there are no large-scale enterprises for the processing of winemaking raw materials. In Moldova, there are specialized associations for grape growing, and their processing into wine materials. However, they are in their infancy, in need of state subsidies, and feel the imperfections of taxation and the legal framework.

In 2017, the European Union allocated funding to Ukraine and Moldova for the implementation of the EU grant project No. 83263440 «Development of the Ukrainian-Moldovan cross-border production, scientific and educational cluster for the processing of winemaking by-products» This project is an integral part of the Moldova-Ukraine Territorial Cooperation Program, which, in turn, is included in the Eastern Partnership Territorial Cooperation Support Programme (EaRTS). The project program provides a number of scientific, and educational measures to involve a wide audience in solving the problem of winemaking by-products. In order to create specialized enterprises in Ukraine and Moldova, it is necessary to combine the potential of research institutions, wineries, and government agencies on the basis of cluster ideology, which will make it possible to gain additional income from sales. Formation and functioning of the cluster for complex, waste-free processing of winemaking raw materials is an economically feasible, innovative and investment-attractive project that satisfies the commercial claims of all participants: founders, suppliers of raw materials, scientists, producers and consumers of products.

The innovative research in the processing of winemaking by-products is intensified after the 2000 year. At this time, the deficit of vegetable oils (olive, sunflower, rapeseed, grape oils, etc.) was 20 ... 25%. As the European Union bans the import and use of synthetic tartaric acid from petroleum products, the demand for tartaric acid in the European market was satisfied by only 40 ... 60%.

The legislation of the European Union strictly prohibits the burial of Berlin blue remains in the ground and, of course, there is a need to develop innovative technologies for the complete and harmless destruction of these toxic compounds. At the same time, the issue of protecting the environment from wine production has become very acute.

Based on the analysis of the world experience and relevant calculations, it is concluded that the region's economy of Ukraine-Moldova annually loses tens of millions of revenues that can be generated by processing and selling secondary raw materials of winemaking.

The analysis of global trends in the development of winegrowing and winemaking in the world makes it possible to conclude that it is necessary to improve and develop these industries in Ukraine and Moldova. Objective prerequisites for this are favorable soil and climatic conditions; the capacity of the domestic and foreign wine market; availability of intellectual and production capital for the introduction of innovative technologies; and socio-economic advantages of the organization of waste-free processing of grapes.

The preconditions for the formation of a cluster in the region of Ukraine-Moldova are significant volumes of raw materials for winemaking; the small scale of domestic production for their processing; the possibility of import substitution of cocoa beans in the confectionery industry with grape seed cake powder; high economic efficiency of production. Constraining

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factors are limited instruments of state regulation of the development; the imperfection of the insurance system; insufficient capacity utilization of wineries; insufficient involvement of innovations in production; low level of trust among the potential cluster members.

The peculiarity of cross-border clusters is that their members are located in different tax, customs, legislative areas of Ukraine and Moldova, however, may have joint ventures and organizations, apply common infrastructure, and may be present primarily in cross-border markets.

The interaction between cluster members is based on long-term contracts. Auxiliary members of the cluster (transport, marketing, research and other enterprises) receive income from their main activities, and their interest in interaction in the cluster - the expansion of consumers of their services. The mechanisms of profit distribution among the founding enterprises of the cluster "core" vary depending on the organizational schemes of the cluster [18]. We propose the following organizational structure of the production-scientific-educational cluster for the processing of winemaking secondary raw materials in the cross-border region of Ukraine-Moldova (Figure 3).

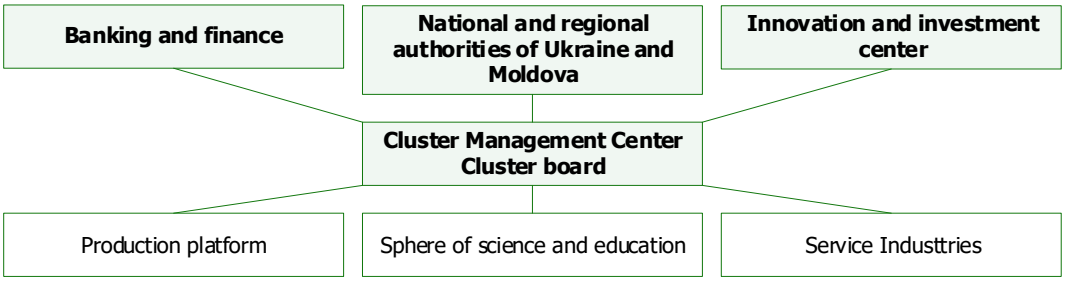

Figure 3. The proposed organizational structure of the cluster in the cross-border region of Ukraine-Moldova.

The intellectual core and catalyst of economic growth should be the leading research and educational institutions of Ukraine and Moldova, which are part of the innovation and investment center of the cluster. The production platform of the cluster will consist of wineries, as well as newly established specialized enterprises involved in the preparation of raw materials for winemaking for further processing at existing or newly established enterprises. In order to successfully export innovative products, it is necessary to follow the modern rules and requirements of the European Union, as the most advanced and effective: the introduction of traceability throughout the technological cycle - from raw material preparation for the production, implementation of HACCP control systems and ISO certification systems.

Thus, the cluster for winemaking raw material processing in the cross-border region of Ukraine-Moldova is a voluntary association of existing wineries and established specialized enterprises and units, research institutions united by common goals for the preparation and processing of raw materials of winemaking in the region of Ukraine-Moldova, the synergy of the interaction of the participants of which will make it possible to ensure the scale effect and enter competitive markets of products.

CONCLUSIONS

The winegrowing and winemaking industry is a promising area of economic development of Ukraine as a whole, which is caused by the favorable soil and climatic conditions and sufficient provision of labor and other necessary resources. However, today the stable and efficient operation of wineries is hampered by a number of problems. The unsatisfactory financial and economic condition of the wine industry is associated with negative phenomena such as the common crisis of the economy, the loss of the Crimean part of the complex, reducing the area of vineyards, reducing the economic efficiency of wine production, the disproportion of the quality of the raw material base and the needs of wine production, lack of proper support from the state.

A major direction towards the increase in the international competitiveness and profitability of wineries is the efficient use of grapes by the introduction of waste-free technologies, which is considered as a strategic direction for the rational use of limited natural resources and environmental protection. In order to effectively solve the existing problems associated with the complex processing of winemaking raw materials, it is necessary to unite wineries in specialized clusters, including enterprises involved in different activities. The creation of a production-scientific-educational cluster for winemaking secondary raw material processing against the background of limited funds for the support of the winemaking industry, above all, - one of the competitive sectors of the national economy, is especially relevant in the conditions of European integration

and fierce competition. The cluster approach is widespread in the world, and the range of its application is multifaceted. In EU countries, the cluster strategies are either part of a national strategy to increase competitiveness or part of a regional program to stabilize regional development. The concept of a cluster in the region of Ukraine and Moldova deserves special attention. Winemaking raw materials in Ukraine and Moldova are partially used in further production, which causes under-capitalization of national economies and the cross-border region Ukraine-Moldova. Based on the analysis of the world experience and relevant calculations, it is concluded that annually the region's economy loses tens of millions of incomes that could be obtained by processing and selling winemaking secondary raw materials.

We substantiated the creation of a cluster for winemaking raw material processing in the cross-border region of Ukraine-Moldova. The author established that the production-scientific-educational cluster for winemaking secondary raw material processing in the cross-border region of Ukraine-Moldova is a voluntary association of existing wineries and established specialized enterprises and units, research institutions which are united by the common goals of preparation and processing of winemaking secondary raw materials in the cross-border region of Ukraine-Moldova, the synergy of the interaction of which participants will ensure the scale effect and enter competitive markets of products derived from winemaking secondary raw materials. The creation of a production-scientific-educational cluster for winemaking secondary raw material processing in the cross-border region of Ukraine-Moldova will increase innovation and investment activity of the business and will serve as a catalyst for the integration of Ukraine and Moldova into the European and world space.

REFERENCES

1. Baldassarre, B., Schepers, M., Bocken N., Cuppen, E., Korevaar, G., & Calabretta, G. (2019). Industrial Symbiosis: towards a design process for eco-industrial clusters by integrating Circular Economy and Industrial Ecology perspectives. *Journal of Cleaner Production, 216,* 446 – 460. https://doi.org/10.1016/j.jclepro.2019.01.091.
2. Bordiga, M, Travaglia, F, & Locatelli, M. (2019). Valorisation of grape pomace: an approach that is increasingly reaching its maturity – a review. *International Journal of Food Science and Technology,* T. 54, № 4, 933 – 942. https://doi.org/10.1111/ijfs.14118.
3. Borodina, A.I., & Kochugueva, M.N. (2012). Development strategy of clusters of enterprises in cross-sectoral regional integration. *Izvestiya Tomskogo politekhnicheskogo universiteta (Bulletin of the Tomsk Polytechnic University), 321(6),* 51 – 55 (in Ukr.).
4. Chebbi. A., Franzetti, A., Duarte Castro, F., Gomez Tovar, F.H., Tazzari, M., Sbaffoni, S., & Vaccari, M. (2021). Potentials of Winery and Olive Oil Residues for the Production of Rhamnolipids and Other Biosurfactants: A Step Towards Achieving a Circular Economy Model. *Waste and Biomass Valorization, T.12, №8,* 4733 – 4743. https://doi.org/10.1007/s12649-020-01315-8.
5. Chen, L., Zhou, Y., Zhou, D., & Xue, L. (2017). Clustering enterprises into eco-industrial parks: Can interfirm alliances help small and medium-sized enterprises? *Journal of Cleaner Production, 168,* 1070 – 1079. https://doi.org/10.1016/j.jclepro.2017.09.104.
6. Colodel, C., Vriesmann, L.C., Teófilo, R.F., & de Oliveira Petkowicz,C.L. (2020). Optimization of acid-extraction of pectic fraction from grape (Vitis vinifera cv. Chardonnay) pomace, a Winery Waste. *International Journal of Biological Macromolecules, T. 161,* 204 – 213. https://doi.org/10.1016/j.ijbiomac.2020.05.272.
7. Conceptual and economic substantiation of the effectiveness of the cluster approach to the processing of secondary raw materials for winemaking. The project «Development of the Ukrainian-Moldovan cross-border production, scientific and educational cluster for the processing of secondary wine products». https://clustermdua.org/en/uploads/files/za2tyfdbrs-brochure.pdf.
8. Dressler, M., & Paunovic, I. (2021). A typology of winery SME brand strategies with implications for sustainability communication and co-creation. *Sustainability (Switzerland). 13(2),* 1 – 17. https://doi.org/10.3390/su13020805.
9. Ferri, M., Vannini, M., Ehrnell, M.,Eliasson, L., Xanthakis, E., Monari, S., Sisti, L., Marchese, P.,Celli, A., & Tassoni A. (2020). From winery waste to bioactive compounds and new polymeric biocomposites: A contribution to the circular economy concept. *Journal of Advanced Research*, *T.24,* 1 – 11. https://doi.org/10.1016/j.jare.2020.02.015.
10. Fontana, A.R., Antoniolli, A., & Bottini R. (2013). Grape pomace as a sustainable source of bioactive compounds: Extraction, characterization, and biotechnological applications of phenolics. *Journal of*

DOI: 10.55643/fcaptp.6.47.2022.3870

Agricultural and Food Chemistry, T 61, 38, 8987 – 9003 https://doi.org/10.1021/jf402586f.

11. Glinskiy, V, Serga, L., Chemezova, E, & Zaykov, K. (2016). Clusterization Economy as a Way to Build Sustainable Development of the Region. *Procedia CIRP, 40,* 324 – 328. https://doi.org/10.1016/j.procir.2016.01.050.
12. Ivanova, M. I., Faizova, S. O., Boichenko, M.V., & Balalaiev, O.K. (2020). Clustering as a tool for managing industrial enterprise. *Scientific Bulletin of National Mining University, 3*, 96 – 102. https://doi.org/10.33271/nvngu/2020-3/096.
13. Karpinska, G.V. (2009). Restructuring of winemaking enterprises as a tool for managing their life cycle (Dissertation for the degree of candidate of economic sciences). Institute of Market Problems and Economic and Environmental Research, Odessa.
14. Lapin, O.V., & Chikunova, N.Y. (2016). Innovative component in the management system of wine enterprises. *Agrosvit (Agrosvit), 23,* 44-50.
15. Lazarieva, Y. V., & Karpinska, H.V. (2008). Cluster as a promising form of restructuring of wineries. *Prometei (Prometheus), 2(26),* 114-119.
16. Mammadova, S.M., Fataliyev, H.K., Gadimova, N.S., Aliyeva,G.R., Tagiyev, A.T., & Baloglanova, K.V. (2020). Production of functional products using grape processing residuals. *Food Science and Technology, T. 40,* 422 – 428. https://doi.org/10.1590/fst.30419.
17. Muratov, V.G., Levinsky, V.M., & Osipova, L.A. (2018). Automation of recycling processes of winemaking. *Avtomatyzatsia tekhnologichnykh i biznes-protsesiv (Automation of technological and business processes), 10(4),* 19-28. https://doi.org/10.15673/atbp.v10i4.1227.
18. Osipov, V.M., & Osipova, L.A. (2019). The concept of a cross-border cluster for the processing of secondary raw materials of winemaking in Ukraine and Moldova. *Problemy formuvannya i stratehiya rozvytku. Ekonomichni innovatsiyi (Problems of formation and development strategy. Economic innovations), 1(70),* 122-133.
19. Pazyuk, V.L. (2016). Branding in the management of the development of wine industry enterprises (Dissertation for the degree of candidate of economic sciences). Chernigiv national technological university, Chernihiv.
20. Porter, M. (2005). Competition. M.: Vilyams, 344 - 346.
21. Rockenbach, I.I., Rodrigues, E., Gonzaga, L.V., Caliari, V., Genovese, M.I., Gonalves, A.E.D.S.S., Fett. R. (2011). Phenolic compounds content and antioxidant activity in pomace from selected red grapes (Vitis vinifera L. and Vitis labrusca L.) widely produced in Brazil. *Food Chemistry, T. 127, 1,* 174 – 179. https://doi.org/10.1016/j.foodchem.2010.12.137.
22. Sedikova, I.O. (2017). Innovative activity as a factor of economic growth of wine industry enterprises. *Naukovyy visnyk Uzhhorodskogo natsionalnogo universytetu. Seriya: Mizhnarodni ekonomichni vidnosyny ta svitove gospodarstvo (Scientific Bulletin of Uzhhorod National University. Series: International Economic Relations and the World Economy), 16(2).* 92-95.
23. Sokolenko, S.I. (2007). On clustering in the (BSEC) countries. *Delovoy vestnik. (Business bulletin), 12(163),* 21- 22.
24. Solskiy, S.B. (2009). Integration of industrial enterprises on the basis of a cluster approach (Dissertation for the degree of candidate of economic sciences). Baikal State University of Economics and Law, Irkutsk.
25. Spigno, G., Tramelli, L., & De Faveri, D.M. (2007). Effects of extraction time, temperature and solvent on concentration and antioxidant activity of grape marc phenolics. *Journal of Food Engineering, T. 81, 1,* 200 – 208. https://doi.org/10.1016/j.jfoodeng.2006.10.021.
26. State Statistics Service of Ukraine. http://www.ukrstat.gov.ua.
27. Tykhonova, A.N., Agyeyeva, N.M., Biryukova, S.A., Globa, E.V., & Abakumova, A.A. (2020). Effect of grape variety, place of growth, and processing technology on the physical and chemical indicators of grape pomace on the physical and chemical indicators of grape pomace. *Tehnika i tehnologiya pishevyh proizvodstv (Food Processing: Techniques and Technology), T. 50, № 3,* 493–502. https://doi.org/10.21603/2074-9414-2020-3-493-502.
28. Valyukhov, S.G., & Gadzhimetov, B.E. (2011). The cluster approach is an effective tool for modernizing production and attracting investment to the region. *InVestRegion (InVestRegion), 4,* 48 – 53.
29. Yablonska, N.V., & Krupina, S. V. (2018). Problems of increasing the competitiveness of enterprises in the wine industry of Ukraine. *Infrastruktura rynku (Market infrastructure), 16,* 147 – 151.

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КЛАСТЕРИЗАЦІЯ ПІДПРИЄМСТВ ВИНОГРАДНО-ВИНОРОБНОЇ ПРОМИСЛОВОСТІ ЯК ЕФЕКТИВНА ФОРМА УПРАВЛІННЯ

У статті представлено інноваційні підходи кластеризації підприємств виноградно-виноробної промисловості як ефективної форми управління. Метою дослідження є детальний та систематичний розгляд актуальних проблем кластеризації підприємств виноградно-виноробної промисловості; обґрунтування створення кластеру в транскордонному регіоні Україна-Молдова як одного з перспективних напрямків зовнішньої реструктуризації.

Методологічну основу становлять: дослідження вітчизняних і зарубіжних вчених в сфері реструктуризації підприємств, законодавчі та нормативні акти України. При вивченні та аналізі проблемних питань статті використовувались такі загальнонаукові прийоми і методи досліджень: логічний - для уточнення поняття «кластер», «кластеризація», порівняльної оцінки - при дослідженні сучасних підходів до кластеризації; статистичного аналізу - при визначенні проблем, тенденцій і перспектив розвитку підприємств виноградно-виноробної промисловості. Представлено різноманітні підходи, що стосуються визначення сутності кластеризації, які знаходять своє вираження в працях вітчизняних та іноземних науковців.

Автором обґрунтовано створення виробничо-науково-освітнього кластера підприємств виноградно-виноробної промисловості в транскордонному регіоні Україна-Молдова. Наявність підходів до визначення кластеризації, їх узагальнення, дозволило виявити, що кластер підприємств виноградно-виноробної промисловості з переробки вторинної сировини виноробства в транскордонному регіоні Україна-Молдова - це добровільне об'єднання діючих виноробних підприємств і сформованих спеціалізованих підприємств і підрозділів, науково-дослідних закладів, пов'язаних спільними цілями по підготовці і переробці вторинної сировини виноробства, синергетика взаємодії учасників якого дозволить забезпечити ефект масштабу і вийти на конкурентні ринки продуктів, отриманих із вторинної сировини виноробства.

Створення кластера з переробки вторинної сировини виноробства в транскордонному регіоні Україна-Молдова дозволить збільшити інноваційно-інвестиційну активність бізнесу та послужить каталізатором інтеграції України і Молдови в європейський і світовий простір.

Ключові слова: кластер, кластеризація, виноградно-виноробна промисловість, виробництво винограду, організаційна структура кластера, транскордонний регіон Україна-Молдова, інноваційні технології виробництва винограду, інноваційні безвідходні технології, переробка вторинної сировини виноробства

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