

DEVELOPMENT ISSUES OF THE VITICULTURE COMPLEX AND THE MAIN DIRECTIONS OF THEIR SOLUTION IN THE RA ARMAVIR REGION

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Introduction. The viticulture complex is one of the most strategically important segments of Armenian economy. The products of the complex - wine, cognac, brandy, fresh grapes and raisin - are among the main products exported from RA, which have comparative advantages in foreign trade and have become a business card for Armenia. The complex plays a major role by reducing unemployment and contributing to improving the standard of living in rural areas. Armavir region is the main viticulture region of RA, as the main part of vineyards and processing factories are concentrated here. Taking into account the importance of the complex for our country, its stable and sustainable development becomes a priority, and the relevance of this research is due to that fact. The main purpose of this article is to identify the existing problems in the viticulture complex of RA Armavir region and to present conceptual measures to their solution.

Methodology. In order to achieve the goal set in the scope of this article, the review of literature related to topic was performed. In the discussion section, the qualitative assessment of the development of the field is presented. The methods of primary and secondary information collecting, analysis, comparison and grouping were implemented to obtain necessary results. In order to obtain information from the grape growers about the existing problems in viticulture, a sample survey method was used. Taking into account the number of grape farms in Armavir region, with a 95% confidence level and a 5% margin of error, the sample size was 365, so 365 surveys were conducted within the research framework. The surveys were carried out using a random sampling method. To gain information about wine and brandy organizations the interview method was used. The results of sample surveys and interviews are condensed in the form of issues of viticulture development and are listed in "Discussion" section. With the bases of that, results the conceptual measures aimed at viticulture development were provided. The discussion part was formed by the combination of analysis and synthesis methods.

Literature review. According to professor Ayvazyan the main features of Armenian viticulture are [Ayvazyan et al., 2015, 6-14]:

- The costs of establishing vineyards start to be repaid in the 3-4th year. With the proper cultivation, a high income per hectare can be obtained,

- Compared to other agricultural products, the yield of grapes is higher per hectare; the grapes do not have a pronounced period of fruiting, which results in a balanced harvest under similar conditions in different years,

- The table varieties of grapes are highly storable and are mainly exported. Due to their good taste and high-quality features, Armenian grapes are in great demand in foreign markets.

The relevant studies, aimed to assessing the development of viticulture in RA, are scarce. Aleksanyan and Tamoyan studied viticulture in Vayoc Dzor region, and made following conclusions [Aleksanyan, Tamoyan H, 2019, 174-184]:

- There are a number of complications and difficulties related to the process of selling grapes in Vayots Dzor region.

- Studies show that about 70% of the grapes produced in the studied region are procured by processing companies in the coastal zone, which has a negative impact on the level of grape production productivity in the region.

- In addition to the above factors, the marketability level of grapes, particularly table grapes, is strongly affected by storage processes and conditions.

- The development of viticulture in the region is significantly hindered by the very small size of the vineyards of the grape-producing farms.

Researchers carried out an econometric assessment of viticulture complex: in particular, the impact of various market [Asatryan, et al., 2022, 1461-1471] and production [Asatryan, 2022, 235-251] factors on the gross grape harvest and vineyard areas' indicators were empirically assessed. It was revealed that the "sale prices" of grapes is the main factor determining the development of the viticulture. Harutyunyan and Keshishyan have studied the impact of gross grape harvest on brandy, wine and champagne production volumes and discovered a positive correlation between them [Harutyunyan & Keshishyan, 2022, 206-220]. In general, viticulture is described as a profitable sector of RA agriculture [Harutyunyan, 2022, 221-233].

Scientific novelty. The scientific novelty of this article lies in the fact that the issues of the development of the viticulture complex of the RA Armavir region were identified and practical recommendations aimed at solving them were presented. In particular, as a result of the surveys conducted among grape producers of the region, discussions with experts, and the study of the secondary sources of information, the phenomena that negatively impact the grape, wine and brandy producers activities were singled out, and on that bases, approaches and measures were outlined, the application of which will lead to the development of the complex.

Discussion. The development of conceptual approaches for the viticulture complex in the Armavir region, first of all, implies a clear identification and definition of the existing problems. As a result of our comprehensive analyses of the sector, evaluations

made by experts, surveys with the grape growers, the following problems and challenges of the viticulture development were identified:

- The low sales prices of grapes,
- Difficulties in the sales of grapes,
- The continuous increase in agro-input prices, that brings to the increase of production costs of grapes,
- The small sizes of grape farms, which negatively affect the efficiency of farms,
- The presence of processing companies with a dominant market position and high level of market concentration in the brandy industry,
- Challenges related to external economic shocks and export problems.

In our opinion, the following approaches can solve the listed problems:

Solving the problem of low prices of grapes requires the use of indirect state intervention tools. The peculiarity of the grape market is that the buyer (in this case the processing and procurement companies) sets sale prices, and the sellers adapt to that prices. As a result, grape prices set by buyers are not always economically beneficial to grape producers. A similar situation with grape sales is observed in other countries too. For example, a similar problem arose in Australia in the early 2010s, when the continuous oversupply of grapes in the market for several years led to a sharp drop in prices. Or in Spain, in the wine-growing region of El Penedes, where oligopsony operates and the terms of sales of grapes are dictated by several large organizations [Homs, 2022, 6-17]. In the context of the sustainable development of the viticulture complex in the EU, a number of direct and indirect measures are applied, which are not related to prices, but solve the issue of ensuring the income of grape growers [Pomarici, 2020]. We recommend making additions in the Law of RA “About alcoholic beverages on the basis of grape raw materials”. In particular, we propose to base the pricing of grapes on sugar content, which is a qualitative indicator for grapes as a raw material. For natural white wines, the grape harvest is carried out when the sugar content is 17-19%, for dessert wines - 21%, and for strong wines - 19-20%. Taking into account the presented technological requirements, we propose to set a minimum level of sugar content according to wine varieties and to increase the price of grapes by 10 AMD for each additional percentage point of sugar during the procurement process, and on the contrary, if the required sugar level is not met, to reduce the price accordingly. Such approach creates equal conditions for both grape sellers and buyers, and ensures certain fairness in setting prices, because the quality of grapes is taken into account in the formation of the prices. For example, the sugar content of grapes that is used for white natural wines can reach up to 21-22% at the harvest period, thanks to which grape producers get the opportunity to sell grapes at a higher price. Such a change in the law implies that clear control structures should also be developed in order to prevent possible violations of the law by

processing companies. The proposed approach is more realistic than, for example, setting minimum prices for grapes by the state, because in the case of our proposal, pricing is based on the relationship of supply and demand, and the qualitative indicator of grapes. Setting a minimum price is highly problematic and may negatively impact the economic activities of processing companies while creating unnecessary tension between the state and the private sector. The low selling prices of grapes are closely related to another sectorial problem, which are the difficulties of sales. Starting from 2020, the supply in the market of grapes exceeds the existing demand, which has a very negative impact on the sales conditions.

The processing and procurement companies claim that they do not have sufficient production capacities, as well as sufficient financial resources, to procure the produced grapes, or they do not fully use the existing production capacities. In this regard, several problems are connected here at once: difficulties in realization are due not only to the fact that there is a significant excess of supply compared to demand, but it is also a consequence of the unhealthy competition formed in the brandy industry. There are organizations with a dominant position in the sector that together produce 60-70% of the final products of the sector. The oligopsony of brandy industry allows these organizations to dictate unfavorable procurement conditions for grape producers: low prices, payment delays, etc. Back in 2018 and 2019, when unprecedented volumes of the gross grape harvest were not recorded, one of the buyers signed contracts for 160-170 AMD, but other buyers set a procurement price of 140-155 AMD, as a result, the buyer who set a high price later had reduced its price to 140 AMD. The problem of sales should be solved by increasing the demand in the market, both through the use of production capacities of existing organizations and the involvement of new businesses.

In the context of the regulation of grape prices and sales, we emphasize the solution of such problems as the full use of production capacities and production potential of processing organizations. During observations, it was revealed that some processing companies have been buying small amounts of grapes in recent years, but continue to release their products. This is a consequence of the fact that these processing companies use imported spirits (wheat, grape), which is a violation of the Law of RA “About alcoholic beverages on the basis of grape raw materials”. It turns out that, on the one hand, processing companies violate the law by releasing and selling products with imported raw materials under the name of Armenian cognac, on the other hand, they do not procure grapes produced in the territory of the RA, creating procurement obstacles, as well as questioning the brand of Armenian cognac.

By selling low-quality products, they question the reputation and quality of Armenian cognac, and create unfavorable conditions for those businesses that do not violate the requirements of law. As a result of the improvement of the state control mechanisms, it is possible to prevent such illegal actions, which will lead to the solution of

many problems of the viticulture complex in a chain way. In the context of solving the sales problems and procurement difficulties, we emphasize the increase in the grape demand, which can be ensured through the promotion of competition and the entry of new businesses in market. For that purpose, we propose the following:

1. In order to improve the competition in brandy industry we propose to reduce the amount of the state duty for the production and sale of cognac,

2. Establish a preferential tax regime for the first three years of activity for wine and cognac start-up companies,

3. We propose to add another state support program, under the name "Support of business entities engaged in the production of alcoholic beverages with grape raw materials". Within the framework of this program the state will provide financial support to the business owners of the sector in two directions: the first component will be directed to already operating organizations of sector, and the second - to new organizations. This program should not only be aimed at revitalizing the sector by stimulating new entrepreneurs, but also at existing organizations, making the most of their production capacities and potential. It is desirable to apply support measures with a differentiated approach, especially to bona fide organizations, taking into account such circumstances as the use of the latest technologies and innovations by the organization, environmental protection, the implementation of circular economy, the involvement of vulnerable members of the society in the workforce, etc.

➤ In the economic literature, many approaches of reducing the production costs are defined, such as optimizing production volumes, increasing the level of mechanization, using innovations and new digital technologies, etc. However, the possibilities of their application are limited in terms of the grape farms of Armavir region, because the majority of farms operate in the traditional way, which is already an obstacle in the context of introducing innovations, besides, the grape farms are mostly small in size and lack the financial resources necessary for investments. Taking into account all these conditions, we suggest reducing the grape production costs by abandoning the burying of grape vines. Due to climatic features in Armavir region, grape vines are buried under the layer of soil to avoid winter frosts. This procedure requires an average of 200,000 AMD costs per hectare, and in the spring, the opposite procedure of burying is performed, which requires an average of 150,000 AMD costs per hectare. In addition to increasing costs, burying of grape vines causes mechanical damage to the vines and additional stress due to bending and being under a heavy layer of soil, all of which negatively affect the yield of the vines. We recommend to replace the burying with other cultivation method, which is nutrition with special preparates. There are special preparates, the regular use of which increases the frost resistance of grape vines. The application of the above-mentioned preparate reduces the probability of damage to the vines, and even in case of damage, the latter's volumes are small and proper cultivation (pruning, fertili-

zing, care of the vines) can partially mitigate the caused damage. Meanwhile, abandoning burying allows to reduce costs by 350,000 AMD per hectare of vineyard. If we accept that on average 22 tons of grapes are obtained from 1 hectare in Armavir region, then the cost reduction per 1 kg of grapes will be 15.5 AMD. At present, there are products increasing the frost resistance of grape vines in the agro input markets of region. One of them is ACTIVE AGRI, which is a complex care scheme planned for entire vegetation of grapes. It includes care with various preparates, which replaces foliar nutrition, contributes to increasing the frost resistance of grape vines, and also fights against fungal diseases. By applying this scheme, grape growers can reduce the costs of burying, fighting fungal diseases during the vegetation period, which is on average 200,000 AMD per hectare. It turns out that by using the ACTIVE AGRI scheme, it is possible to reduce the costs of grape production by 550,000 AMD. The cost of applying the scheme is on average 300,000 AMD per hectare, therefore, as a result of its implementation, it is possible to save 250,000 AMD, to free the vines from excessive stress and injuries. If implemented, this scheme will cause the reduction of production costs by 11.4 AMD/kg.

➤ In order to solve the problem of the small sizes of grape farms, we propose to make a change in the already existing "2021-2023 state support program for the development of intensive horticulture in RA, introduction of modern technologies and promotion of production of non-traditional high-value crops". In particular, within the framework of the support program for the establishment of vineyards, to increase the minimum threshold of land area by setting 5ha instead of 0.5ha and to implement the compensation of the costs of establishing a vineyard, as well as to establish tax benefits, to exempt grape producers with newly planted vineyards of 5ha and more from land tax for 6 years. The proposed approaches will make the sector more attractive for investors and will simultaneously contribute to the enlargement of land, as well as the establishment of larger vineyards.

➤ In order to reduce the negative impact of external economic shocks on the activities of the viticulture complex organizations and to mitigate the possible financial difficulties of the exporters, we suggest that the Government of the RA and the "Armenia Export Insurance Agency" jointly develop new insurance products that will provide an opportunity to insure export problems arising during logistic processes. The support of the sector's exporters is also important, in the form of providing seasonal credit support or implementing "Credit Holidays".

➤ In our opinion, the cornerstone of the development of the viticulture complex of the RA Armavir region is the establishment of a viticulture cluster in the region. In the simplest definition, a cluster is a set of interconnected organizations located in the same geographical area, where vertical rather than horizontal integration takes place. According to Porter, the development of industry clusters has become one of the key goals of regional development, because clusters can promote competitiveness by inc-

reasing productivity, promoting innovative partnerships (even between competing organizations), and creating opportunities for entrepreneurial activity [Porter, 1998]. Studies indicate that the establishment of clusters also has a multiplicative effect on job creation. For example, in the US state of Indiana, the vertical cluster of chemical products has led to the multiplication of jobs in the region by a multiplier of 4.4, that is, for every 10 new workers in the cluster, 34 new employees are recruited outside the cluster. In the case of a cluster specialized in food processing and production, the multiplier was 2.9 and so on [Slaper, Ortuzar, 2015].

Large wine-growing regions and countries of the world, such as New Zealand [Dana, et al., 2013, 42-49], California [Mueller, Sumner, 2006], Spain [Marco-Lajara, et al., 2022, 146-167], France and Brazil [Zen, et al., 2011, 123-141], Portugal [Rebelo & Caldas, 2013, 19-34] are characterized by their developed wine clusters. The peculiarities of the RA Armavir region, the existing resource potential, the state of development of the viticulture branches in the region, create sufficient conditions for the establishment of a viticulture cluster in the region. Key participants of the cluster will be grape growers, organizations engaged in grape procurement and preliminary processing, organizations engaged in brandy and wine production, scientific research institutions: Armenian National Agrarian University (ANAU), Voskehat Educational and Research Center of Enology, and "Brandy and Wine Inspection body" representing the state sector. Establishing an organic connection between the listed participants should be the basis for the development of the region's viticulture cluster. The proper use of the scientific potential of the ANAU and Voskehat Educational and Research Center of Enology is of key importance in placing the development of production processes on a scientific basis, in the development and localization of innovative approaches, etc. The involvement of scientific research institutions in the development of sectorial strategies can increase the scientific validity of these strategies. The development of the cluster will also provide an opportunity to solve problems of providing professional agriculture extension services.

Other participants of cluster are the organizations engaged in the trade of agro-inputs, in particular the organizations engaged in the trade of fertilizers, chemicals, tools and equipment, and the organizations that supply the production means to the organizations engaged in the production of wine and cognac. Tourism companies, catering and restaurant services are no less important part of the cluster. Wine tourism is a widely spread type of service in the world, and RA Armavir region has all prerequisites for its further development. Currently, there are several small wineries in Armavir region, which combine wine production with agro tourism, organizing visits, tastings, and simultaneously selling their products. The development of the viticulture cluster in RA Armavir region will allow increasing the economic ties of the organizations of the sector, to make them more competitive and more resistant to external negative developments. By strengthening the "Production-Science-State sector" connection, which is cur-

rently fragmented and weak in some places, preconditions will be created for the maturation of the grape-growing cluster in the region.

Conclusions. The comprehensive study of the viticulture complex of the RA Armavir region is a testament that there are a number of issues in the sector, which need to be immediately and systematically addressed. The low sales prices of grapes, the difficulties of sales in recent years, the small sizes of grape farms and the year-by-year increase in agro-inputs' prices negatively impact the grape production, leading to a reduction of grape producers' incomes. At the same time, the processing segment of the complex is also facing serious problems due to the negative consequences of external economic shocks, the gradual deepening of export difficulties, unfavorable fluctuations in the exchange rate, and the unhealthy market competition in the brandy industry. To solve listed problems following recommendations were provided:

- To develop pricing mechanism for grapes based on the sugar content in grapes,
- To develop and implement state support programs for grape farms with large vineyards and new organizations engaged in grape processing,
- To promote the market competition in processing sector by creating a favorable conditions for new businesses in the sector, through the use of various tax and credit privileges,
- To decrease the production costs of grapes by reducing the burying of grapevines and using new agrotechnical measures instead,
- To establish viticulture cluster in RA Armavir region for the further development of the complex.

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Development issues of the viticulture complex and the main directions of their solution in the RA Armavir region

Key words: viticulture complex, development issues, cluster, Armavir region

The viticulture complex is one of the most strategically important segments of the RA economy. Taking into account the importance of this sector the study of the development issues of the complex was carried out in the context of Armavir region, and conceptual approaches aimed at solving those issues were put forward. It was revealed that the following are the main problems threatening the development of the complex: the low prices of grape and difficulties of sales of grapes, the small sizes of grape farms and the high cost of grape cultivation. Another group of problems is related to the external economic factors such as export difficulties, unfavorable fluctuations of the foreign exchange rates and external economic shocks. In the scope of the article it was substantiated that those issues can be solved using such approaches as the creation of a wine cluster in the region, the use of new grape pricing mechanisms, the promotion of competition in the processing sector, the use of various state regulation and support measures.