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CLUSTERS – A MODERN WAY OF COOPERATION ENHANCING THE COMPETITIVENESS OF THE HORTICULTURAL ENTERPRISES FROM THE REPUBLIC OF MOLDOVA

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Rezumat. Întreprinderile contemporane reprezintă o formă modernă de cooperare între oameni, în timp ce relaţiile dintre aceste întreprinderi şi alte organizaţii reprezintă o treaptă avansată în ierarhia cooperării. În acest articol se analizează posibilitatea cooperării întreprinderilor agricole producătoare de mere din Republica Moldova prin crearea de clustere, care presupune colaborarea atât între întreprinderile agricole, cât şi cu sectorul de cercetare-inovare. În toată lumea clusterele reprezintă un instrument pentru renovare economică şi socială. Crearea clusterului mărului va ajuta producătorii horticoli să coopereze mai eficient între ei şi să soluţioneze împreună problemele în cadrul clusterului horticol. Un loc deosebit în modelul clusterului mărului revine Proiectului „Livada Mea", finanţat de Banca Europeană de Investiţii, în valoare totală de 120 mln EURO. Scopul principal al proiectului a fost de a moderniza lanţul valoric al sectorului horticol din Republica Moldova. Obiectivul de bază al cercetării date constă în evidenţierea importanţei clusterelor ca formă modernă de cooperare în vederea sporirii competitivităţii întreprinderilor agricole din sectorul horticol al Republicii Moldova.

Cuvinte–cheie: Întreprinderi agricole; Cooperare; Cluster; Producţie horticolă; Factorii competitivităţii.

Abstract: Contemporary enterprises represent a modern way of cooperation between people, while the relations between these enterprises and other organizations represent an advanced stage in the hierarchy of cooperation. This scientific article analyses the possibility of cooperation between the apple producing agricultural enterprises from the Republic of Moldova through clusters, which supposes both the collaboration between the agricultural enterprises and with the research-innovation sector. All over the world clusters represent a tool for economic and social renovation. The creation of apple clusters will help horticultural producers to cooperate more efficiently with each other and to solve the problems of the fruit and vegetable growers within the horticultural cluster. A special place in the cluster apple model is revealed by the Project "Livada Mea" financed by European Bank for Investments in total amount of 120 mln EUR. The purpose of the project was to modernize the value chain of the horticultural sector in the Republic of Moldova. The main objective of the given research is to emphasize the importance of clusters as a modern way of cooperation enhancing the competitiveness of the horticultural enterprises from the Republic of Moldova.

Key words: Agricultural enterprises; Cooperation; Cluster; Horticultural production; Competitiveness factors.

INTRODUCTION

History has shown many times that humanity needs cooperation. Alfred Marshall, in his book "Principles of Economics", mentioned the positive effect of the concentration and specialization of economic sectors on a certain geographic area. Thus Michael Porter (1990, 1998, 2008), at the beginning of the '90s, invented and popularized the concept of cluster which in his opinion represents: "a geographic concentration of companies and institutions interconnected in a specific field of activity".

At present, cluster formation – the mutual cooperation between the agricultural enterprises; agricultural enterprises and processing enterprises; agricultural enterprises and internal/external market; agricultural enterprises and science/innovation sector - represents an opportunity for economic and social renovation.

It has been proved that clusters represent a very promising tool enhancing the agricultural enterprise competitiveness all over the world. The basic objective of the present scientific research is to analyze the role of clusters in enhancing the competitiveness of the horticultural enterprises; to analyze the relations between the members of the proposed horticultural cluster and to point out the role of the key elements within the horticultural cluster in the Republic of Moldova.

MATERIALS AND METHODS

The scientific research is based on the secondary data from the National Bureau of Statistics. The following research methods were used in this scientific research: comparative analysis, logical analysis, analysis and synthesis, induction, deduction, graphic method, grouping method etc. Also, for the

elaboration of this scientific article, it was used the specialized economic literature in the field of competitiveness, clusters, cooperation, etc.

RESULTS AND DISCUSSIONS

Cooperation through clusters has become a trend in the European Union and the cooperation networks through clusters are considered the „engine" of the economic development and innovation, which represent a special framework for business development, collaboration between enterprises, research institutes, suppliers, clients and competitors located in the same geographic area (local, national, international) (Nallari, R., Griffitch, B. 2013).

The analysis of an economy through clusters and not through usual categories of company groupings has the advantage that, first of all, the clusters correspond better to the nature of competition and to the sources of the competitive advantage. Thus, most elements of a cluster don't compete directly, but serve for different segments of an activity.

In the Republic of Moldova the major sustainable development potential is located in the agrarian sector. The small farmers and rural communities where these farmers live are characterized by an „equilibrium cycle" of low margins, which is the result of the low ability to assume risks, small investments determining low productivity, low market orientation and respectively low value added activity and which is finally revealed in low net margins.

Therefore, in order to increase the competitiveness of the agricultural enterprises from the Republic of Moldova, the creation of cooperation „value networks" will represent an efficient measure to break this „vicious cycle", thus ensuring the increase of the long term competitiveness of the agricultural sector. In this context, the value networks represent an aggregation of (Gedai, E. et al. 2012; World Bank, 2009)

♦ vertical relations between the suppliers of raw materials and production inputs, agricultural producers, processors, exporters, buyers and wholesalers;

♦ horizontal relations between producers which take organizational forms of production such as: households, LLC etc.;

♦ support relations between the producers and the organizations which facilitate certain services (for example: local government, research organizations, universities, NGO) in order to increase the quality, efficiency and to ensure the sustainability of the chain.

Thus, according to Figure 1, the cluster is a group of agricultural producers who have common facilities; their final product is intended for processing enterprises which afterwards transport it to local wholesalers, importers and exporters. Only clusters with strong market connections represent an ideal agricultural value network.

The situation in the Republic of Moldova is quite different, because local producers depend very much on the external market, especially on the Russian Federation market. Therefore, a unique definition regarding the ideal agricultural value network doesn't exist.

Analyzing the experience of the neighbor countries, especially the experience of Romania, which is at the beginning of creating clusters, we found out that the cooperation between enterprises within clusters leads to the economic development of the country. Thus, in Romania, there are 47 clusters and according to the life cycle of clusters - generation, development, excellence and internationalization - Romanian clusters are at the first stage: generation and development.

There is no legal framework in the Republic of Moldova concerning the creation and development of clusters. Some attempts regarding the creation of certain types of clusters in the Republic of Moldova have been initiated by the Government in 2013, based on the Government Decision Nr. 64 of 20.08.2013 regarding the approval of the Cluster conception development for the industrial sector. Unfortunately, this initiative was without some visible results.

According to data provided by the National Bureau of Statistics of Moldova, in 2011, the largest number of the high value added enterprises was concentrated in the North region of Moldova and namely: seeded fruits species – 570 enterprises; stone fruit species – 241 enterprises; vegetables – 174 enterprises. The biggest number of winegrowing enterprises was concentrated in the South region of Moldova – 385 enterprises. As for the Central region, we can state that the number of seeded fruit growing enterprises was almost equal to the number of stone fruit growing enterprises and constituted in 2011 as follows: 293 seed fruit growing enterprises and 288 stone fruit growing enterprises (BNS, 2014).

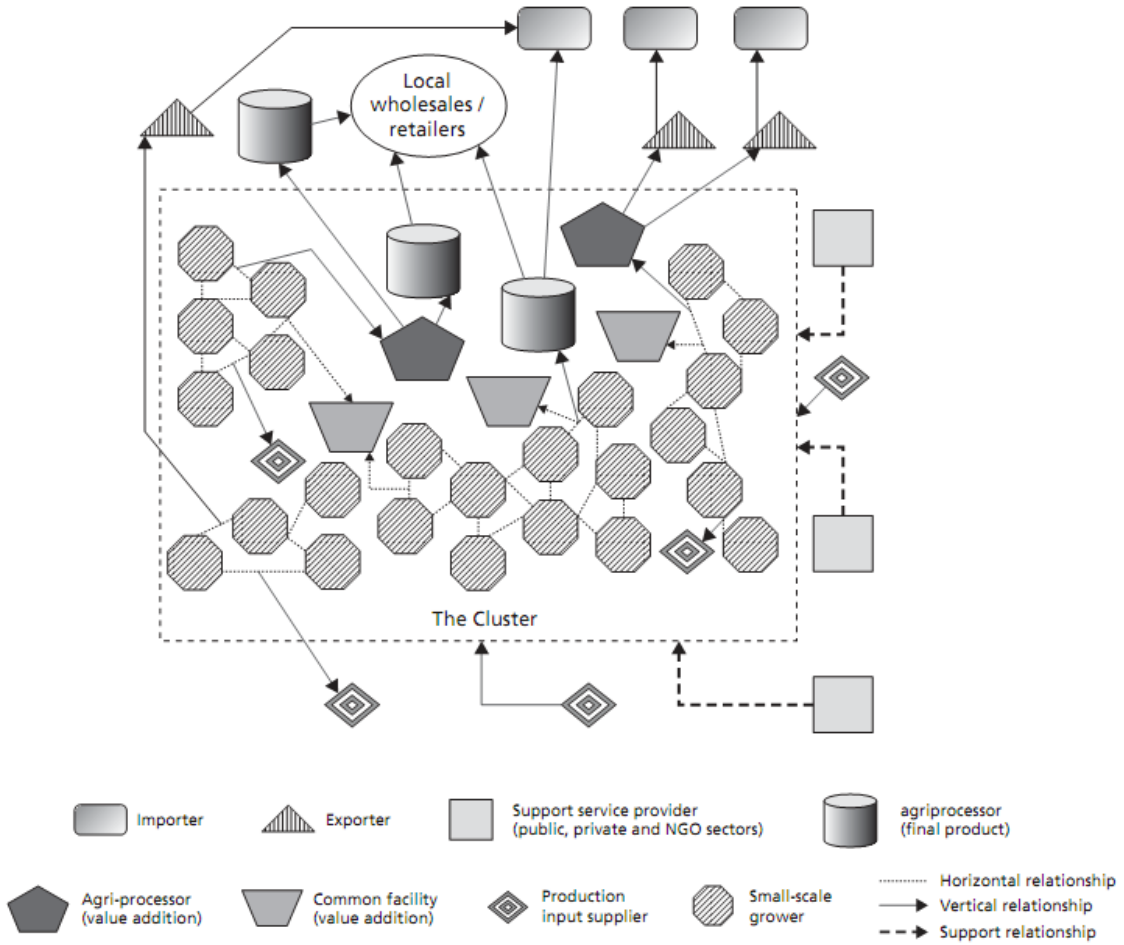


Figure 1. *Ideal agricultural value network*

Source: (OECD, 2011)

Table 1. *Commercialization of the main horticultural products by type of enterprise in the period 2008-2012, thousand tons*

	Total sold production			out of which:					
				processing enterprises			other trading channels (market, own trading system, barter transactions)		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Vegetables	36.9	33.7	29.7	14.6	9.3	6.9	22.3	24.4	22.8
Fruits	131.9	142	144.7	31.1	26.3	47.1	100.8	115.7	97.6
Grapes	48.6	81.5	63.4	21.7	43.7	31.9	26.9	37.8	31.5

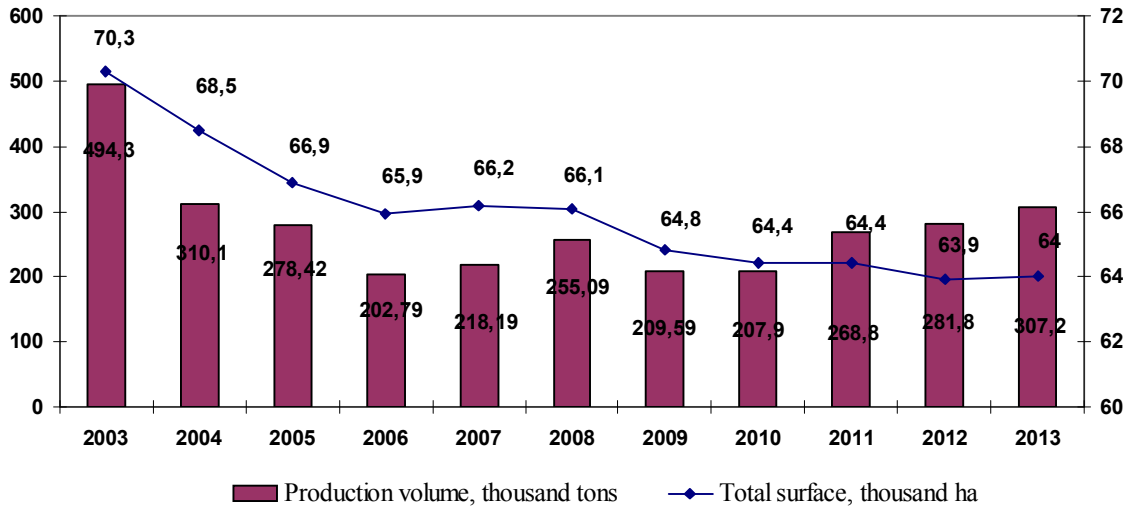
Source: Elaborated by the author based on the data from National Bureau of Statistics of the Republic of Moldova

But according to the analysis of the main horticultural product markets (see Table 1) we can state that the level of horticultural products commercialized to the processing enterprises is very low. This can be explained by the low level of cooperation between agricultural producers growing fruits and vegetables and the processing industry.

Therefore, we can affirm that the main part of horticultural production is sold not to the processing enterprises but to other trade channels such as: directly on the market, through its own system of commercialization and barter transactions. Thus, in 2012, through other trade channels, there were sold 97,6 thousand tons of fruits which is by 50,1 thousand tons more than to the processing enterprises. A similar situation could be observed as for the trade of vegetables, which, in 2012, have been sold by other trade channels in a total quantity of 22,8 thousand tons, which is by 3,3 times more than to processing industries (BNS, 2014).

One of the reasons why such a small quantity is sold to the processing industries is connected to the low prices offered by the processors, while another serious problem lies in the lack of cooperation between the producers of horticultural products and processors.

Figure 2. *Dynamics of the production volume and total surface cultivated with apples in the period 2003-2013*



Source: Elaborated by the author based on the data from National Bureau of Statistics of the Republic of Moldova

Analyzing the dynamics of apple volume production in the Republic of Moldova during 2003-2013, we can say that the highest volume of production was recorded in 2003 – 494,3 thousand tons, after that the volume of production decreased down to 307,2 thousand tons in 2013.

The lowest level of apple production was recorded in 2006, constituting 202,79 thousand tons, which represents a decrease by 2,43 times during three years compared to 2003 when this indicator was 494,3 thousand tons (BNS, 2014).

As for the total surface cultivated with apples, during 2003-2013, it was registered a decreasing trend from 70,3 thousand ha in 2003 to 64 thousand ha in 2013. Analyzing Figure 2, we can mention that during 2010-2013, it has been recorded an increasing trend of the apple volume, but the problems regarding the marketplace and frequent embargoes from Russian Federation caused substantial losses and a lot of production didn't reach the final consumer.

After the embargo imposed by the Russian Federation in 2014, it was recorded a decrease of the total exports, because Russian Federation was the main sale market of agricultural products from the Republic of Moldova. Therefore, the creation of horticultural clusters will intensify the level of cooperation between the horticultural producers, producers and processors but also between the horticultural producers and state institutions, which will give the possibility to join efforts in solving problems of mutual concern.

The idea of creating apple clusters, grape clusters, peach clusters etc., depending on the horticultural specialization, will help the producers of fruits and vegetables to cooperate more efficiently.

Analyzing the apple cluster model developed for the Republic of Moldova, we can state that in order to produce high quality apples it is required to have a profound cooperation between the company management, processors and state institutions. Also, besides the direct participants at the production process, the company management should collaborate with the supporting industries in order to ensure an appropriate product packaging, which would be attractive for the customers.

Figure 3 shows the direct impact of the Project „Livada mea" (My orchard) funded by the European Bank for Investments in the total amount of 120 mln EUR. This project has the purpose to modernize the value chain of the horticultural sector of the Republic of Moldova and represents a new opportunity of funding the agricultural producers by the European Investment Bank. According to the project, the beneficiaries of the project will be: 300 economic agents from the horticultural sector and 52 000 agricultural farms and economic agents from the related industries. According to the funding contract "… there will be created laboratories, made trainings and provided education regarding food security."

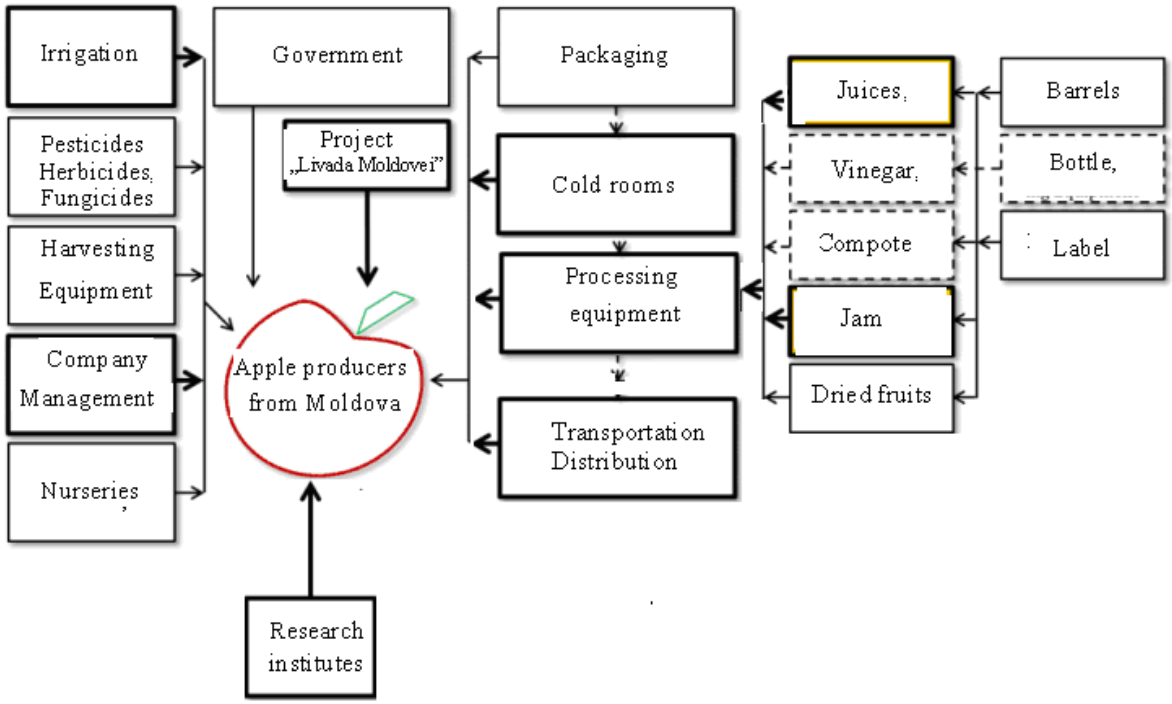


Figure 3. *Apple cluster model for the Republic of Moldova*
Source: Elaborated by the author

Thus after analyzing „Porter Diamond" through the strategy of apple cluster it could be emphasized the strong and weak points of apple cultivation, which are presented in Figure 4.

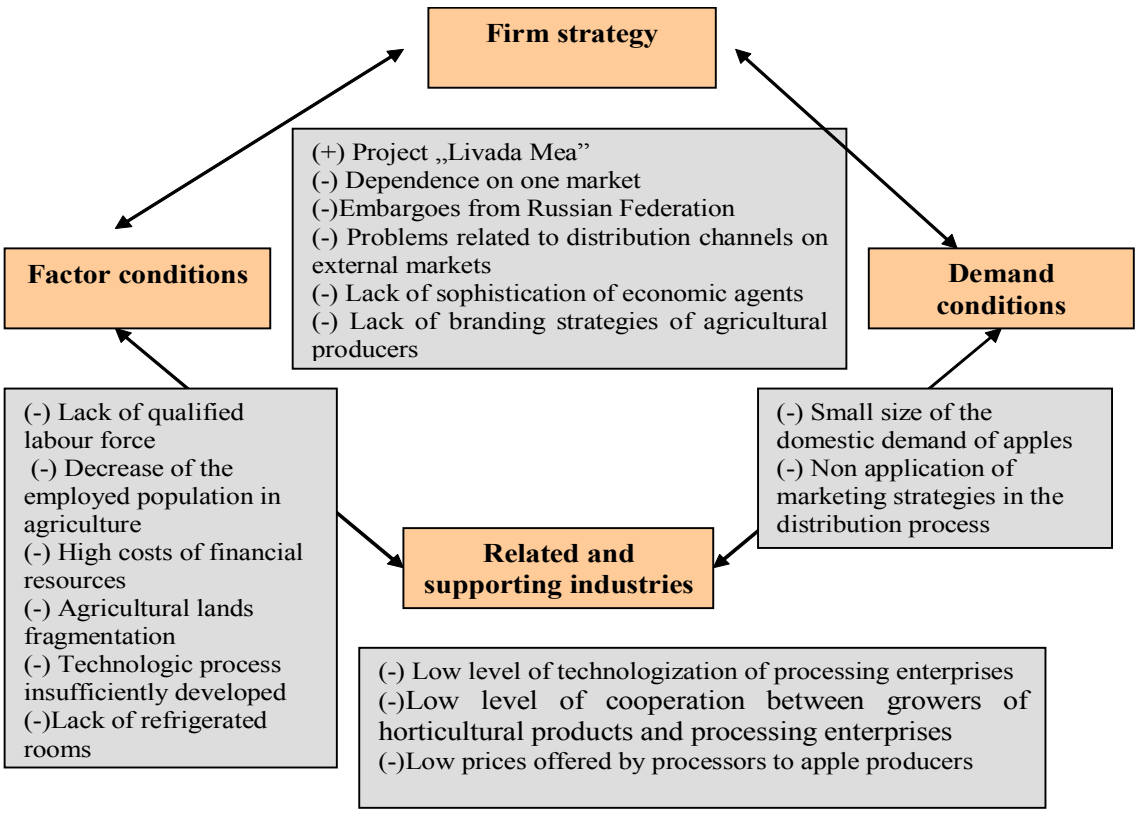


Figure 4. *Analysis of the competitiveness factors of the apples producing enterprises from the Republic of Moldova using the Model of Porter Diamond*
Source: Elaborated by the author

Based on the analysis of the competitiveness factors of the apple producing enterprises from the Republic of Moldova using the Porter Diamond Model, we can mention that there are multiple problems and namely:

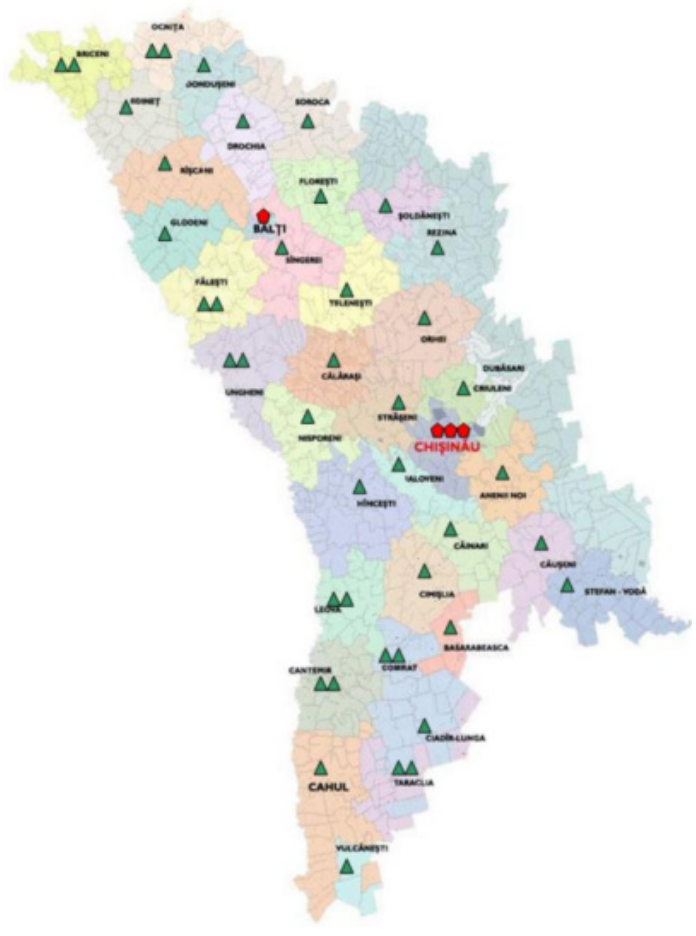
♦ **Company's Strategy.** The main problem is the dependence on one market – the market of Russian Federation - which could be very dangerous, as it was proved by the embargo imposed in 2014. According to the estimations of MAFI, total losses of the apple producers in 2014 constituted approximately 100 mln USD. An important point in analyzing the competitiveness factor is the Project „Livada Mea" (My orchard) according to which the horticultural sector will be funded by EIB in the total amount of 120 mln EUR.

♦ **Demand conditions.** In the Republic of Moldova, the internal demand for apples is low, and no marketing strategies are implemented in the distribution of products. Most products are sold in „open air" markets.

Apples reach the final consumer through multiple markets, among which we can distinguish: **outdoor retail markets, supermarkets, small fruit and vegetable shops, export markets** (Leahu, V. et. al. 2011).

1. „Open air" markets – is the predominant type of market in the Republic of Moldova. The requirements regarding the quality on this market are not very high and the competitiveness here is based mostly on price. The consumers choose the products which satisfy them according to their incomes. There are 4 big wholesale markets in the Republic of Moldova; three of them are located in Chisinau. These wholesale markets supply 138 markets from all over the country, among them: 38 markets at the district level and 100 local markets, out of which 12 are located in Chisinau (see Figure 5).

2. Supermarkets – occupy an insignificant position in the commercial network, namely less than 5%. Gradually, it was registered a change in consumers' preferences: from products sold in the open air to well packed products sold in the supermarkets. The origin of products sold in supermarkets is mostly from distribution companies and less from producers, i.e. directly from the open field. One important point regarding the sale of horticultural products in supermarkets is that consumers can buy the desired product all year round, but in order to achieve this, it should be ensured strong relations of collaboration with the suppliers, who will provide production all year round and will ensure the quality of products.



▲ Retail agricultural markets (38 markets)
● Wholesale agricultural markets (4 markets)

Figure 5. *The main wholesale markets in the Republic of Moldova*

*Source: prelucrated by author based on data from (*Stiopca, O. et al. 2011)

3. Small fruit and vegetable shops – these shops were created especially in intensely populated areas in order to facilitate the access to the horticultural products not far from consumer' house without being it necessary to go to the market. According to some calculations performed by the suppliers, approximately 20-40% of the production commercialized in these shops is due to their location near the residential areas.

4. Export markets – The greatest quantity of apples is exported directly from the field by the trade intermediaries. Until 2014, the major export market was Russian Federation, where approximately 90% of apples were exported.

♦ **Related and supporting**

industries. The cooperation between apple producers and processors is very weak. The prices at which apples are bought for juice, jam and vinegar are very low compared to the prices of apples sold in „open air".

♦ **Factor conditions.** It was registered a lack of qualified labour force in the apple producing sector. The credits for establishing apple plantations are very expensive and it is very difficult to access them because of the specific activity related to the agricultural sector. It is necessary to establish an attitude of cooperation between banks and apple producers, because the reimbursement period of credits doesn't coincide with the period of fruit bearing.

Thus, summing up the above-mentioned facts, we may state that the creation of apple clusters will intensify the cooperation between apple producers and processors. All apple producers will come with a consolidated position within the apple cluster regarding the existing problems and they will try to solve them through joint efforts.

Similarly to the example of apple cluster, it should be created clusters of grapes, tomatoes and other horticultural products in order to increase the cooperation between the agricultural producers of fruits and vegetables and to influence positively enterprise competitiveness and namely: production, innovation and creation of new business associations.

The increase of competitiveness depends on the cooperation level between the agricultural enterprises – clusters being an efficient way of solving the problems the agricultural producers face.

CONCLUSIONS

The agricultural producers of fruits and vegetables are facing many problems regarding the marketplace of the horticultural production. The greatest part of horticultural production is sold through different trading channels and only a small quantity is sold to the processing industry.

One of the reasons why such a small quantity is sold to processing industry is connected with the small prices offered by the processors, while another serious problem lies in the lack of cooperation between the producers of horticultural products and processors.

Clusters represent a modern way of cooperation between the producers and processors all over the world. The main directions of cluster's influence on the enterprise competitiveness are: production, innovation and creation of new business associations.

Thus, the creation of horticultural clusters will intensify the level of cooperation between the producers of horticultural products, producers and processors, but also between the horticultural producers and state institutions, which will give the possibility to solve the problems existing in the horticultural sector through joint efforts.

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