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**Conference Paper**

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**Provided in Cooperation with:**

The Research Institute for Agriculture Economy and Rural Development (ICEADR), Bucharest

*Suggested Citation:* Mladinoi, Vasile; Pîntea, Maria (2020) : Efficiency of Republic of Moldova stone fruit species restructuration within the condition of globalisation, In: Agrarian Economy and Rural Development - Realities and Perspectives for Romania. International Symposium. 11th Edition, The Research Institute for Agricultural Economy and Rural Development (ICEADR), Bucharest, pp. 46-51

This Version is available at:

<https://hdl.handle.net/10419/234370>

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# EFFICIENCE OF REPUBLIC OF MOLDOVA STONE FRUIT SPECIES RESTRUCTURATION WITHIN THE CONDITION OF GLOBALISATION

MLADINOI VASILE<sup>1</sup> MARIA PÎNTEA<sup>2</sup>

**Summary :** *In the article there are presented data regarding contribution of continuous development of stone fruit trees assortment for the republic of Moldova. As a result of comparative analysis evaluated researches and practical actions there are stands out enlargement of total surface of established orchards of stone crops by 45 thousand ha. Creation and implementation of new stone varieties there are directed to local and foreign modern fruit markets, especially for fresh consumption, obtained annual quantity has increased by more than 109 thousand tons.*

**Key words:** *stone fruit trees species, local and introduced varieties, adaptability, efficiency, Republic of Moldova*

**Jel Clasification:**

## INTRODUCTION

Traditionally pomiculture has been and continues to be one of the major agricultural branches in the Republic of Moldova, due to the favorable natural conditions, the people's traditions, the high economic efficiency, and availability more than 100 thousand ha of land in slopes with a northern exposition and an inclination of 6-12 degree, which can be used in the most efficient manner by way of cultivating fruit trees species, particularly the stone and nuts [1,4].

In 2000 the area of orchards in the Republic of Moldova totaled over 100 thousand ha, of which around 75 thousand ha were in a satisfactory state and possessed an efficient productivity potential, which could be used through the application of modern technologies. were confronted in 2000-2008 the challenge of performing fundamental research in order to improve the situation in the pomiculture branch, by the way of rationalizing utilization of the available orchards with the inexhaustible productivity potential and by their replacement with orchards of a new ones, with a new locally created as well as introduced from different areas adaptable assortment and advanced technologies (including based on irrigation), that would ensure an early economic fructification, a high productivity of qualitative fruits (especially stone species), particularly moldovan organic etc. products, demanded and competitive both in the internal and external markets. Having these realities in view it is necessary to elucidate some aspects referring fruit growing development in the context of the unprecedented reduction of productivity of old orchards that have not yet explored regarding its possible potential and establishment of the new modern intensive and super intensive orchards [5-7].

## MATERIAL AND METHODS

The study refers the evolution of principal indexes achieved in the fruit growing of the Moldova Republic such as: development of fruit growing plantation area; development or canceled, of the cut clear areas and of those planted with fruit trees species, including small fruits and strawberry; evolution of fruit growing plantations, productivity and of the total production by species;

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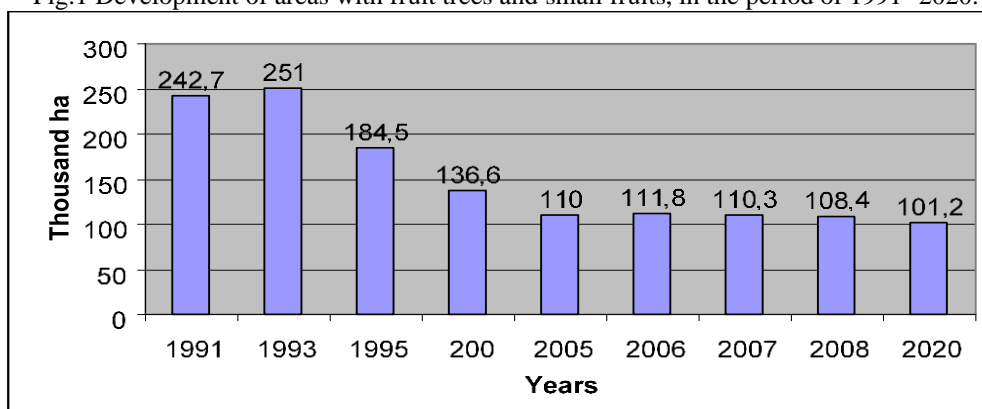
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modalities of turning fruits to good account [2, 3]. According to official statistical data of the Republic of Moldova, results of researches of public scientific institutions, forecast of the Ministry of Agriculture, as well as a number of new elaborated strategies of respective domain will conduct research on the possibilities of applying the new methods of fruit trees culture, including organic ones. The collected data were analyzed using the aproved methods.

## RESULTS AND DISCUSSION

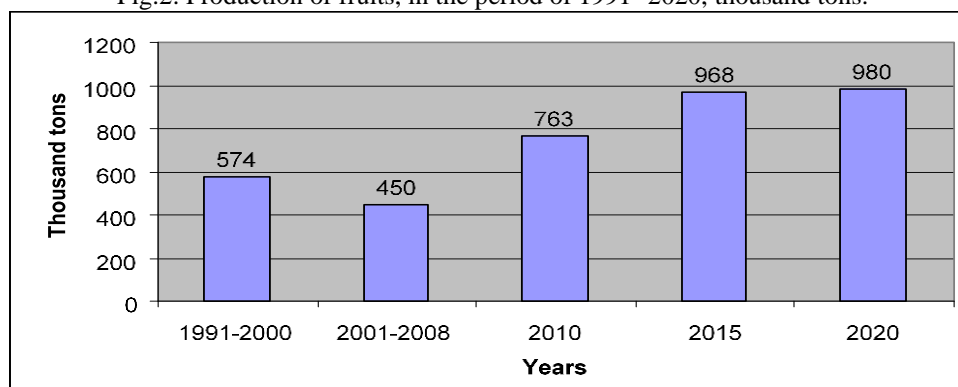
Acording accumulated data from 1993 the area of fruit growing plantations was ascent, reaching 251 thousand ha. Statistic data confirm the reduction of fruit growing plantations area of 2.2 times (fig.1, 2; tab 1,2) The area of the fruitful orchards until 1993 increased and constituted 173,5 thousand ha (70 % of the overall plantations). So, it is reduced up wards of 60 in comparison with 1993 and constitutes 101,2 thousand ha in 2008. Practically the total orchards area the Moldova Republic has equals to the fruitful orchards area. From statistic data results that while the cut clear areas had an ascendant tendency, the new plantations traversed an inverse sense. Extension of the fruit growing plantation area till 2007 was ascent reaching 5100 ha (Fig. 2). This the average production per ha and the analyzed total harvest had an irregular evolution. It is sufficient to mention that during the last 18 years only three times (1993, 1997 and 2003) the average harvest of fruit growing plantations has overcome the level of 5 t/ha, and the total harvest only in 1993 reached the level of one million tons of fruits – as for the rest of years these indexes are in average at the level of 3-4 t/ha and 300-400 thousand tons of fruits that constitute the level of associated fruit growing productivity comprising the specific pomiculture system and family gardens (Tab. 1, 2).

Fig.1 Development of areas with fruit trees and small fruits, in the period of 1991 -2020.



Source: Statistical Office of the Republic of Moldova

Fig.2. Production of fruits, in the period of 1991 -2020, thousand tons.



Source: Statistical Office of the Republic of Moldova

It should be noticed that with its favorable climate and geographical conditions, rich soil resources and biological diversity, agriculture continue to be main pillar of the Moldovan national economy. Orchards in Rep Moldova occupy 4.8% of area under agricultural land. As a rule, more than 50% of that surface is occupied by apple and plum orchards. (tab. 1,3). It is significant that in the Republic of Moldova there are cultivated a lot of fruit species of temperate zone ( walnut, apples, plums, apricots, peaches, sour and sweet cherries, pears, almonds rarely quince, hazelnuts and cornelian cherry). For apples, plums and sour cherry there are valuable all distinguished pomological zones. The rest of crops need specific pedological and microclimatic conditions, they could be founded in relatively limited spaces in variable microzones/microareas of all Moldovan agricultural landshaft. For main industrially cultivated apple, walnut, plums there are included not only varieties created in Republic of Moldova, but also European and American modern assortment, which is sophisticated within changeable market.

Table 1.

Development of fruit crops surfaces and production in Republic of Moldova  
(Source: National Bureau of Statistics of Rep. Moldova. 2016 year.)

<b>Indexes</b>	<b>2015</b>	<b>2016</b>	<b>Public propriety</b>	<b>Private propriety</b>
Plantations of orchards and shrubs, total thousands ha	135,6	134,6	0,7	133,0
Fruiting orchards, total thousands ha	110,4	110,1	0,6	109,7
Yield, total thousands tons	485,0	595,7	0,8	594,9
Pomme, stone and nuts crops, total thousands tons	132,6	131,4	0,6	130,8

Table 3.

Surfaces, global yield and average production of some multiannual crops in 2016 y., depending of type of propriety etc.  
(Source: National Bureau of Statistics of Rep. Moldova. 2016 year.)

<b>Indexes</b>	<b>Private sector</b>		<b>Different Agricultural Enterprises with public and private type of proprieties</b>		
	<b>Horticultural associations</b>	<b>Individual sector</b>	<b>2015</b>	<b>2016</b>	<b>% in 2016 comparatively with 2015</b>
Plantations of orchards and shrubs, total thousands ha	20,3	85,1	51,9	49,5	95,3
Fruiting orchards, total thousands ha	18,4	73,7	38,9	36,4	93,4
Yield, total thousands tons	78,7	383,3	191,1	212,4	111,1
Apples, total yield, thousands tons	33,7	264,7	135,0	411,4	153,3
Plums, thousands tons	71,7	58,4	100,0	99,7	99,5
Nuts ( mainly walnut), thousands tons	-	-	11,0	13,8	125,1

Some increase in fruit production is facilitated by: sufficient land resources and a numerous group of producers with new professional and marketing knowledge, as well as entrepreneurial spirit and innovativeness. Of course, actually development of Moldovan fruit PGI, PDO and TSG and organic fruits, especially based on local varieties could be an important promoter of socio-economic growth for whole country. Another important fruit trees in Republic of Moldova there is walnut-one of the oldest fruit trees species between the rivers Prut and Dnestr. Among the most important centers for the walnut tree culture in our country could be mention Central and South-East geographic areas of Republic of Moldova.

For Moldovan peasants nuts always was and will remain a valuable food product as well as an important product for trade. According to local plants census counts for more than 2,5 million walnut trees in rep. of Moldova, more than 85 % are in the fruitfulness period. The new look to walnut

culture in the Republic of Moldova is done after adoption of Walnut Law (Nr. 658 – XIV from 29.12.1999), and the creation of the special national Walnut Fund, which sets as the goal preserving and development of the existing patrimony, as well as the promotion of the intensive industrial orchard culture based on irrigation (tab.2).

Republic of Moldova sells walnut kernels and in shell walnuts in more than 30 countries, main importers are France, Austria, Germany followed by Greece, Italy and Spain. Export of walnut kernels or in shell walnuts is organised by many local economic agents. As a rule nuts production is bought by different foreign companies (more than 70) on the basis of long-term contracts. Actually moldavian registered walnut assortment includes main 5 local varieties and more than 15 introduced (Catalogul soiurilor de plante al Republicii Moldova, Chisinau, 2020). Local varieties were obtained as a result of selection of valuable genotypes from local populations and its detailed biological and agronomical investigations including comportment in different competitive micro culture areas. Moldavian varieties are characterized by high adaptability to diverse local environmental (edaphical and microclimatical) conditions.

The principals trials of new cultivars selected for establishment of industrial plantations are: productivity (especially based on lateral type bearing) and nuts qualities. It should be that the development of many domestic fruit production, including local cultivars is concentrated around the cities. Main exported fruits of trees species are: walnut, apple, plum and in the last time sweet cherry,. Apple is the principal fruit tree species industrially cultivated in the Republic of Moldova, being developed especially at the north part of country. Actually according to the variety (mainly introduced), the fruit productions obtained in experimental high density apple orchard of 3,077 trees ha<sup>-1</sup> (3.25 m x 1.0 m), were 19.3 up to 30.0 t ha<sup>-1</sup> in the second year after planting and in the third year from 29.7 to 38.5 t ha. Orchards must produce earlier in order to generate an earlier return on investment and improve profitability. Thus, the investment recovery is achieved in 6-7 years from planting for apple, 6 years for sweet cherry and in 8-9 for plum, depending on planned duration of orchard exploitation (as a rule: 12-15 years for apple, 15-20 years for cherry and plum).

Culture tradition of European plum (species *Prunus domestica* L.) in the Republic of Moldova dates back to almost 2000 years ago, processed plumes (prunes) having significant socio-economic and heritage value. Starting from the 18-19 centuries plums there are cultivated practically in all home garden (domestic orchards). During the 1800 years in the territory of actual RM there were intensively established commercial plums orchards on the basis of local, as well as introduced European varieties. Actually in the R M more than 25000 private farmers there are involved in the production of fruits, especially plums. As consequence of dynamic expansion and reconversion of fruit trees plantation occurred. Of course at the same time continue to be abandoned and lost old plum genotypes. Now practically plum (including 1-2 old varieties) grow in all local yards and orchards, dried plumes (prunes) continued to having significant socio-economic and heritage value. There are promoted significant change of the agriculture in general, that moved from the land-owner old style management to the modern intensive farming. Some old moldovan plums occurs scarcely in a few papers (Cabucico G. A. 1953, Pomologia Republicii Populare Romane. 1964; Juraveli A. M. et all. 2007). Old catalogues of 7-10 main local nurseries listed a lot of varieties (Cabucico G. A., 1953). As consequence a dynamic expansion and reconversion of fruit trees plantation occurred. Of course at the same time continue to be abandoned and lost old plum genotypes. Therefore not only local creation and implementation of new varieties, but evaluation and establishment of germplasm of old local plums genotypes/varieties are indispensable.

Table 2.

Quantitative and qualitative species/variety transformations within fruit growing domain, y.y. 1990-2020

Species	Totally registered varieties for propagation		In 2020 – varieties, permitted for testation in condition of partially cultivation	In 2020 varieties registered for multiplication in the Republic of Moldova
	1990	2011		
<b>Apple-totally, incl.:</b>	14	56	28	77
Summer varieties	4	9	-	13
Autumn varieties	2	15	-	16
Winter varieties	8	32	-	48
<b>Pear-totally</b>	14	19	5	22
Summer varieties	3	5	-	2
Autumn varieties	5	8	-	2
Winter varieties	6	6	-	20
<b>Quince</b>	4	9	-	10
<b>European Plum</b>	11	20	3	30
<b>Japanese Plum</b>	-	3	-	4
<b>Peach</b>	17	22	18	24
<b>Apricot</b>	5	12	8	20
<b>Sweet cherry</b>	9	23	9	34
<b>Sour Cherry</b>	5	10	2	13
<b>Walnut</b>	5	14	45	36
<b>Almond</b>	-	7	-	8
<b>Hazelnut</b>	2	-	16	5
<b>Cornelian cherry</b>	-	4	-	4
<b>Ziziphus</b>	2	5	-	5
<b>Small fruits</b>	9	10	18	40
<b>Totally</b>	<b>97</b>	<b>214</b>	<b>131</b>	<b>332</b>

Source: Catalogs of plant varieties of Rep. Moldova for 1990-2020 y.y.

Diversification of stone fruit varieties are targeted to increase capacity of storage in controlled conditions, being well adapted to local conditions, very attractive on the high market of fresh fruits. So, for plums actually there are interesting not only Stanley and Prezident, but also Centenar, Pitestean, Valor, Blue Free, Black Star, Espresso, Tophit, Haganta, Cacanska lepotica etc. For sweet cherry – Early star, Regina, Kordia, Big Star, Hebros., Vinka, Van. Etc. Peach there are represent by Rich Lady, Big top, Quin Crest, Orion, Sweet Lady, Venus, etc. New implemented apricot varieties should have a long rest period of flower buds, tolerance to PPV, good ability to transportation. Among them we notice: Wondercot, Orangered, Pinkcot, Kyoto, Big Red etc.

## CONCLUSIONS

Development of fruit trees production is a sure way to improve existing fruit production/exporting potential in the Republic of Moldova. Based on these results, this domain has a predisposition to become the region with driving force of development. Favorable characteristics of relief and climate factors are the basis for the development and improvement of fruit production directed to local and foreign market. Combining the advantages by introducing new European, etc. stone varieties with high level of adaptability and ecologic plasticity, new efficient agrotechnical production methods of fruits for fresh consumption, as well as with the good perspectives that products are sold to the international market, cause the development of the entire republican brunch.

Contribution of continuous development of stone fruit trees assortment for the republic of Moldova there are revealed. As a result of comparative analysis evaluated researches and practical

actions there are stands out enlargement of total surface of established orchards of stone crops by 45 thousand ha. Creation and implementation of new stone varieties there are directed to local and foreign modern fruit markets, especially for fresh consumption, obtained annual quantity has increased by more than 109 thousand tons.

## BIBLIOGRAPHY

- [1] [http://www. http://statistica.gov.md/category.php](http://www.statistica.gov.md/category.php)
- [2]. <https://mpr.ub.uni-muenchen.de/53382/>. Impact of economies of scale in the horticultural sector of the Republic of Moldova.
- [3] Catalog of Plant varieties for year 2020. Editie oficiala, Chisinau 2020.
- [4] FAO (2017). Review of Agricultural Trade Policies in former Soviet Union countries 2015-16. Retrieved from <http://www.fao.org/3/a-i7327r.pdf>
- [5] Donica, I., M. Rapcea et al. 2008, Renovarea pomiculturii Republicii Moldova în baza rezultatelor științifice, Chișinău, Cercetări în pomicultură. Vol 7, p 195-203.
- [6] Programul de dezvoltare a horticulturii pe anii 2013-2020 (versiunea preliminară). Accessed: <http://www.maia.gov.md/doc.php?l=ro&idc=49&id=15452>
- [7] Rapcea, M., V. Mladinoi, V. Babuc și a. 2002, Programul dezvoltării pomiculturii în Republica Moldova pe anii 2002-2020, Chișinău, Cercetări în pomicultură, Vol I. p 20-31.
- [8]. Strategia de dezvoltare a sectorului agroalimentar în perioada 2006-2015. //MAIA, Chișinău, 2006. P. 32-34