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STUDY ON THE INFLUENCE OF IMPORT AND EXPORT OF FRUIT IN ROMANIA ON ECONOMIC INDICATORS

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Abstract

The aim of this paper is to highlight the importance of trade in fruits in Romania, what share does it have in the European and global trade, to show what is its contribution to the development of national economy and how does it affect the GDP of agriculture in Romania. Trade represents a form of human activity hat achieved along time the strongest connection between peoples, contributed to the development of economies and societies. The analysis methods used in order to highlight the changes occurred on the fruit market in Romania are as follows: the grouping method, the degree for covering the import by exports, correlation method. Analysing the correlation in Romania between fruit production, the value of agriculture GDP, and fruit import, a significant correlation is noticed, and the increase of fruit production has a positive impact on GDP and helps diminishing the imports. For the situation to be improved, fruit production increase is advisable, by increasing productivity as a result of using more efficient technologies, setting up associations of producers, building storage facilities.

Key words**:** *correlation method***,** *fruit, GDP, Romania*

INTRODUCTION

Trade represents a form of human activity hat achieved along time the strongest connection between peoples, contributed to the development of economies and societies as a whole. [5] [17] trade represents an efficient branch of an economy, that contributes to the development of society, especially in this period, given that it is based on a strong competition.

It is well know that economic growth strongly stimulates imports of fruits, whereas inflation reduces them. [13]

The Romanian exterior trade and not only faces a series of issues among which the most important are: the increase of economy opening degree, adaptation to the new trends at world and European level, the increase of competition on the international markets, including on the European ones. [1]

In Romania, trade in fruits may represent an important part of the trade in agricultural products considering the geographical position, favourable climate conditions, fruit growing tradition, as well as the existence of some producing varieties created in the research stations that would determine better living conditions for the Romanian farmers.

In Romania, the state of the fruit-growing sector is, currently, not quite good, considering the area occupied by orchards that was of 230,795 ha in 1990, being diminished to 140,048 ha [14] in 2011 and the high level of imports, that were of USD Thousand 14,000 in 1990, being increased to USD Thousand 45,460 in 2011. [8] [10] [15]

Romania's accession to the European Union has resulted in the emergence of the Single Market, removing the import and export barriers, and the downward trend of fruit production since 1989 has adversely affected the fruit market. [9]

The Romanian fruit market features a wide variety of fruits, and a great seasonality, leading to a different demand according to the season. It also features a high level of fruit perishability and self-consumption. The high level of self-consumption is due to the lack of storage facilities owned by the manufacturers and the high number of population living in the rural area, with a weight of 45 % in 2011. [4]

Another negative factor is the existence of

small farms, with high input consumption and outdated technologies, and the lack of a marketing strategy. [19]

The fruit quantity obtained at the national level is not enough and does not always meet the quality requirements, so that the buyers are caused to prefer imported fruits, leading to the diminishing of Romanian farmers' income and, implicitly, adversely affecting the national economy.[7]

The aim of this paper is to highlight the importance of trade in fruits in Romania, what share does it have in the European and global trade, to show what is its contribution to the development of national economy and how does it affect the GDP of agriculture in Romania.

MATERIALS AND METHODS

The analysis methods used in order to highlight the changes occurred on the fruit market in Romania are as follows: the grouping method, the degree for covering the import by exports, correlation method.

The grouping method presupposes the grouping of the products after certain characteristics, based on it one can perform the analysis of import and export, but one can also establish the weight of certain products in the import and in the export.[2]

Grouping represents a classification and its purpose is to highlight the main characteristics, in the case of fruits, they were grouped into stone fruits and seedy fruits. Fruit classification was made according to the structure, thus, pome fruits are fleshy, having seeds enclosed in compartments with parchment-like walls (apples, pears) and stone fruits are characterized by the juicy pulp and tough stone enclosing the seed (apricots, plums, peaches, nectarines, cherries).

The degree for covering the import by exports is calculated as a ratio between the value index of export and the value index of import.

$$Ga=\frac{E}{M}\times 100 \text{ [2]}$$

Ga= the degree for covering the import by exports;

E= export value;

M= import value;

The correlation method shows the level of association between the variables, expresses the association degree between variables. It is a general term used in order to define the interdependence or relation between the variables notices in statistic populations. In restrained sense it is a measure of the degree of statistic relation between the quantitative variables, under the name of „correlation coefficient". [11]

The correlation coefficient is a composite indicator measuring the intensity of relations between the variables.

Frequently, the simple linear correlation does not correspond to the type of dependency between the two variables and therefore, other types of regression functions are used.

In this paper, to better highlight the connection between the variables, a second-order polynomial regression function was used, type $Y= a+bx+cx^2$, where:

a= level of dependent variable (Y) when the independent variable x is constant

b = level of dependent variable (Y) when the independent variable x increases or decreases by an unit

c = level of dependent variable (Y) when the independent variable x has connections with other factors from the outside environment

The determination coefficient (r^2) expresses what share of Y variation is owed to X factor.[3]

The correlation ratio may have values between 0 and 1. When the value is close to 1, the connection between the variables is stronger and it is less intense when closing to 0. The minus sign indicates the reverse connection, while the plus sign indicates the direct connection. [6]

Data taken from Food and Agriculture Organization of the United Nations website and the Statistical Yearbooks of Romania for 1990 and the period 2002-2013.

RESULTS AND DISCUSSIONS

Due to climate conditions and low performance management, the tree fruit production has registered significant fluctuations that are strengthened by the high degree of perishability of many species,

varieties and fruits. In this context, the challenge is to find and substantiate measures in order to ensure the continuity of production flow to the market, to avoid the excesses of price fluctuations that, finally, affect the manufacturers' income and generate confusion, uncertainty among the consumers.[16]

Area planted with fruit trees and the fruit production obtained are important indicators justifying fruit imports.

In Romania, in 1990, area cultivated with fruit trees was of 230,795 ha, in 2002, it has decreased to 207,809 ha, and in 2014 to 147,435 ha. Area cultivated with fruit trees has diminished in 2013 compared to 1990 with 36.12 % and with 29 % compared to 2002. (Table 1)

The underlying cause of decreasing the area cultivated with fruit trees was the transition to the market economy starting with 1990 that allowed the restitution of land to the owners. Because the owners did not have the financial resources and mechanical means necessary for the management of the orchards they have received following the restitutions, they were compelled to grub up a large part of these areas.

The dynamics of areas cultivated with fruit trees compared to 1990 and 2002 is the following: the areas cultivated with orchards in the period 2002-2013 compared to those cultivated in 1990 are decreasing continuously, from 90 % in 2002 to 64.9 % in 2013. (Table 1)

Table 1. Area cultivated with orchards and its dynamics in Romania

Period	Surface (ha)	Fixed base indices 1990 (%)	Fixed base indices 2002(%)
1990	230,795	100.00	-
2002	207,809	90.04	100.00
2003	203,687	88.25	98.02
2004	194,456	84.25	93.57
2005	199,968	86.64	96.23
2006	157,345	68.18	75.72
2007	156,002	67.59	75.07
2008	149,267	64.68	71.83
2009	145,292	62.95	69.92
2010	144,844	62.76	69.70
2011	140,048	60.68	67.39
2012	142,242	61.63	68.44
2013	147,435	63.88	70.94

Source: Statistical Yearbook of Romania, 1996, 2007, 2012;2015; own calculations

Compared to 2002, the areas cultivated with orchards in the analyzed period are also continuously decreasing. If in 2003, the area cultivated with orchards represented 98 % of that of 2002, in 2013 it represented only 70.9 % (Table 1).

As regards fruit production in Romania, it can be said that it is fluctuating, but continuingly increasing (Table 2). In Romania, fruit production in 1990 was of 1,453,007 ton, diminished in 2002 to 952,000 ton, and in 2013 it increased to 1,299,972 ton. During the analyzed period, the highest fruit production was obtained in 2003, being of 2088506 ton.

Table 2. Fruit production in Romania (ton)

Period	Apples	Pears	Plums	Peaches and nectarines	Cherries	Apricots	Annual total
1990	683,152	73,800	449,500	52,900	67,700	48,000	1,453,007
2002	491,500	68,100	220,638	13,000	66,300	18,300	952,000
2003	811,100	103,758	909,648	18,000	98,500	42,591	2,088,506
2004	1,097,837	45,931	475,767	19,629	50,988	20,648	1,744,400
2005	637,979	88,890	622,357	29,797	117,859	52,410	1,647,000
2006	590,413	62,425	598,753	17,408	104,791	38,754	1,486,400
2007	475,370	62,852	372,631	16,980	65,163	27,567	1,085,800
2008	459,016	52,576	475,290	16,432	67,664	32,125	1,179,200
2009	517,491	66,111	533,691	17,132	67,874	32,499	1,323,000
2010	552,860	60,375	624,884	11,241	70,290	23,804	1,419,600
2011	620,362	66,913	573,596	22,494	81,842	33,745	1,479,900
2012	462,935	54,274	424,068	17,428	70,542	29,089	1,128,594
2013	513,580	66,849	512,459	19,130	80,477	28,310	1,299,972

Source: Statistical Yearbook of Romania, 1996, 2007, 2012; www.fao.org

This situation appears due to the fact that the quantity and quality of the fruits is directly dependent upon the climate conditions (drought, hail), diseases, pests, production technologies applied. Other negative issues of the fruit growing sector are: the reduction if the area cultivated with orchards, crumbling; the lack of high performance technologies for cultivation and processing; low production on the hectare; the lack of storage areas; fruit growing areas n decline and abandoned.

As regards structure, in Romania, fruit production is shared by apples, as 45%, plums, as 40 % and other fruits, 15 % (Table 3)

Table 3. The structure of fruit production in Romania

Period	Apples	Pears	Plums	Peaches and nectarines	Cherries	Apricots
1990	50	5	33	4	5	3
2002	52	7	23	1	7	2
2003	39	5	44	1	5	2
2004	63	3	27	1	3	1
2005	39	5	38	2	7	3
2006	40	4	40	1	7	3
2007	44	6	34	2	6	3
2008	39	4	40	1	6	3
2009	39	5	40	1	5	2
2010	39	4	44	1	5	2
2011	42	5	39	2	6	2
2012	41	5	38	2	6	3
2013	40	5	39	1	6	2

Source: Own calculations

Within the total fruit production, the share of apples ranges from 39 % to 63 % and the share of plums ranges from 23 % to 44 %. (Table 3)

As regards the dynamics of fruit production, the production obtained in 2013, compared to 2002, has increased with 5.74 % and decreased with 10.5 % compared to that obtained in 1990 (Table 4). It can also be noted that apple production has registered a downward trend compared to 1990, except 2004, when an increase of 60.7 % was registered. In exchange, for the same period compared to 1990, plum production has an ascending trend, except 2002 when a decrease of 50.9 % took place and in 2007 the decrease was of 17.1 %.

Table 4 Dynamics of fruit production

	Fixed base indices 1990 (%)							Fixed base indices 2002 (%)					
	Apples	Pears	Plums	Peaches and nectarines	Cherries	Apricots	Total	Apples	Pears	Plums	Peaches and nectarines	Cherries	Apricots
1990	100	100	100	100	100	100	100						
2002	71.9	92.3	49.1	24.6	97.9	38.1	65.5	100	100	100	100	100	100
2003	118	140	202.4	34.0	145.5	88.7	143.7	165.0	152.4	412.3	138.5	148.6	219.4
2004	160	62.2	105.8	37.1	75.3	43.0	120.1	223.4	67.4	215.6	151.0	76.9	183.2
2005	93.4	120	138.5	56.3	174.1	109.2	113.4	129.8	130.5	282.1	229.2	177.8	173.0
2006	86.4	84.6	133.2	32.9	154.8	80.7	102.3	120.1	91.7	271.4	133.9	158.1	156.1
2007	69.6	85.2	82.9	32.1	96.3	57.4	74.7	96.7	92.3	168.9	130.6	98.3	114.1
2008	67.2	71.2	105.7	31.1	99.9	66.9	81.2	93.4	77.2	215.4	126.4	102.1	123.9
2009	75.8	89.6	118.7	32.4	100.3	67.7	91.1	105.3	97.1	241.9	131.8	102.4	139.0
2010	80.9	81.8	139.0	21.2	103.8	49.6	97.7	112.5	88.7	283.2	86.5	106.0	149.1
2011	90.8	90.7	127.6	42.5	120.9	70.3	101.9	126.2	98.3	260.0	173.0	123.4	155.5
2012	67.8	73.5	94.3	32.9	104.2	60.6	77.7	94.2	79.7	192.2	134.1	106.4	159.0
2013	75.2	90.6	114.0	36.2	118.9	59.0	89.5	104.5	98.2	232.3	147.2	121.4	154.7

Source: Own calculations

Compared to 2002, apple production has an ascending trend, except 2007 and 2008, when it has decreased with 3.3 % and 6.6 % respectively. And in case of plum production, an ascending trend can also be noticed in this period.

Although there are large plantations of fruit trees, as regards the quantity, structure and regularity of market supply, the domestic production is not enough [18] and that's why Romania imports fruits.

In Romania, fruit import is represented by: apples, pears, grapes, plums, apricots, bananas, kiwi etc.

Table 5. Import, export of fruits and their dynamics in Romania

Period	Import (thousands $)	Export (thousands $)	Fixed base indices for import (%)		Fixed base indices for export (%)	
			1990	2002	1990	2002
1990	14,000	24,000	100	-	100	-
2002	6,889	1,165	49.2	100.0	4.9	100.0
2003	6,649	4,214	47.5	96.5	17.6	361.7
2004	9,461	3,364	67.6	137.3	14.0	288.8
2005	25,797	5,119	184.3	374.5	21.3	439.4
2006	29,381	4,800	209.9	426.5	20.0	412.0
2007	66,480	12,937	474.9	965.0	53.9	1,110.5
2008	69,658	10,126	497.6	1,011.1	42.2	869.2
2009	34,889	12,466	249.2	506.4	51.9	1,070.0
2010	33,403	19,542	238.6	484.9	81.4	1,677.4
2011	45,460	25,398	324.7	659.9	105.8	2,180.1
2012	56,043	24,619	400.3	813.5	100.2	2,113.2
2013	60,336	27,117	431.0	875.8	113.0	2,327.6

Source: Statistical Yearbook of Romania, 1996: www.fao.org; own calculations

Analyzing the evolution of fruit imports in Romania, according to Table 5, it is determined that in the period 2002-2004 compared to 1990, there was a decrease of imports, a positive fact for Romanian economy. But in the period 2005-2013 compared to 1990, there was an increase of imports. In the period of 2003-2013 compared to 2002, the fruit import had an ascending trend, the highest increase being registered in 2008, of 911%.

Fruit import in Romania is due to the high demand for fruits of the domestic market, considering that the domestic production does not cover the necessary. Fruits imported to Romania include fruits that grow in our country and fruits that do not grow here, but are demanded by the market.

Consequently the increase of the fruit production determines the drop of the import value, given the orientation trend of the consumer to locally produced fruits, considered to be more ecological, with better taste, that may be purchased at a better price. But there are also consumers who prefer the imported fruits because they have a better quality, especially as regards the look. There was also a time when the local producers were not able to sell their products in supermarkets allowing the consumers who bought from those stores to buy imported fruits. Another cause of the high level of imports would be the influence of climate conditions on fruit production, resulting in a decrease of them, both quantitative and qualitative. The lack of an organization of local manufacturers in professional associations, the low productivity determined by a weakly developed irrigation system, the insufficient investments in the sector determine the decline of internal production, favoring imports in this manner.

You may find below an analysis of fruit imports in Romania as regards the value, considering the two groups in which fruits are divided: stone fruits and pome fruits.

Analyzing the evolution of fruit import in value terms in Romania according to fig. 1 it can be noticed that in the period 2002-2013 the value of the import of seedy fruits was higher than the value of import of stone fruits.

Furthermore, it is noticed that the trend of seedy fruits was an oscillating one, thus in

2007 compared to 2006 an increase of s 93.7% was registered, and in 2009 compared to 2008 a drop of 45.9% was registered.

Consequently the year when the import reaches the highest value is 2008 by USD thousands 69,658. In the case of stone fruits the increase from 2007 compared to 2006 was 195.4% , and the drop from 2009 compared to 2008 was 55.6%, furthermore it can be noticed that even though in the 2010-2013 an ascending trend was registered, the maximum value of import was in 2008, reaching USD Thousands 28, 749.

The fruit import in Romania in the period 2002-2013 was in average USD Thousands 22,860.8 in the case of seedy fruits and USD Thousands 12,407.3 in the case of stone fruits. And the average of fruit import in Romania in the analyzed period was USD Thousands 35,268.1.

The share of fruit import in Romania of the global and European Union import is shown in table 6.

It can be noticed that the share of Romanian fruit imports of the global import ranges from 0.09 % in 2003 to 0.56 % in 2007. In 2008, the share was of 0.51 %, in 2009 and 2010 it has decreased, and in 2011 was of 0.3 %.

As regards the share of fruit imports in Romania of the European Union import, it is noticed, as in case of the global share, that in 2007, the highest value was registered, of 0.99 %. If in 2002, the share of Romanian imports of the European Union imports was of 0.19 %, in 2013, it has increased to 0.72%.

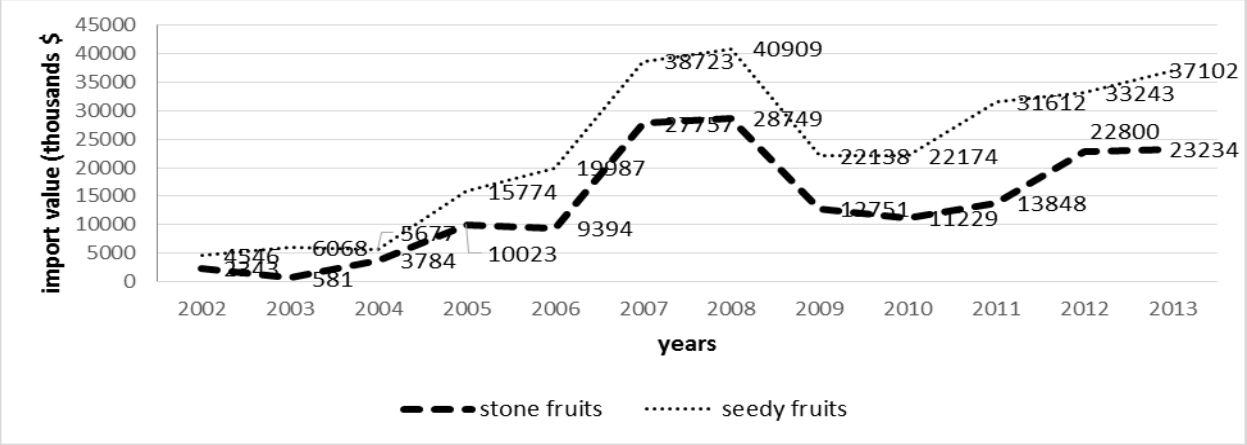

Fig.1 The evolution of world fruit import in value terms in Romania

Table 6. Share of fruit import in Romania of the global and European Union import

Specification	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
The share of Romanian fruit imports of the global import	0.11	0.09	0.11	0.30	0.29	0.56	0.51	0.29	0.24	0.30	0.29	0.35
The share of Romanian fruit imports of the UE import	0.19	0.14	0.18	0.51	0.51	0.99	0.91	0.58	0.55	0.70	0.67	0.72

Source: Own calculations

The highest share of the fruit import was registered in Romania in 2007 and was mainly a result of the very low fruit production of that year.

As regards the export, according to Table no. 5, it can be noticed that, compared to 1990, in the period 2002-2013 there was a downward trend that adversely affected the Romanian economy. Compared to 2002, in the period 2002-2013 the fruit export has registered an ascending trend that positively affected the economy.

Fruit export of Romania is also analyzed by the two fruit groups, stone and pome fruits.

Analyzing the evolution of fruit export in value terms in Romania according to fig. 2 it can be noticed that in the period 2002-2013

the value of the export of stone fruits and seedy fruits varied a lot.

Thus in the case of stone fruits an increase of 156.5% is noticed in 2003 compared to 2002, followed by a drop of 16.8% in 2005 against 2004, in 2006 compared to 2005 an increase of 27.6% is registered, followed by a drop of 43.1% in 2007 against 2006 and an increase of 103% in 2008 against 2007. In fact 2008 is the year when the value of export of stone fruits is the highest, given the fact that a new drop follows, and then an ascending trend, without reaching the maximum value from 2008.

With regard to the export of seedy fruits it can be noticed that the value is very low, but in 2007 compared to 2006 an increase of 2,918% takes place, but in 2008 compared to 2007 a drop of 79.9% is registered, followed by a new spectacular increase in 2011 compared to 2010, of 505%.

The fruit export from Romania in the period 2002-2013 was in average USD Thousands 3,882.1 in the case of seedy fruits and of USD Thousands 4,489.3 in the case of stone fruits. And the average of fruit export in Romania in the analyzed period was USD Thousands 13,451.3.

The fruit export from Romania represented 23.2% from the total fruit trade of Romania. The degree for covering fruit export from the fruit import at the level of Romania was 30.2%.

The share of fruit export in Romania of the global and European Union export is shown in Table 7.

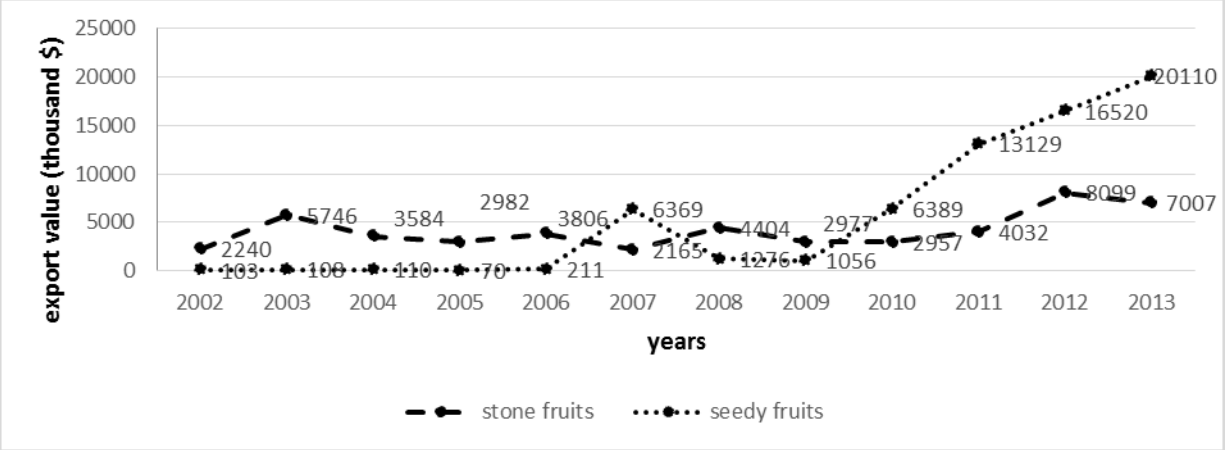

Fig.2 The evolution of world fruit export in value terms in Romania

Table 7. Share of fruit export in Romania of the global and European Union export

Specification	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
The share of Romanian export of the global export	0.02	0.06	0.04	0.06	0.05	0.12	0.08	0.11	0.15	0.18	0.16	0.19
The share of Romanian export of the EU Export	0.04	0.10	0.08	0.12	0.09	0.22	0.14	0.22	0.31	0.38	0.38	0.40

Source: Own calculations

In the analyzed period, the share of Romanian export of the global export has increased, from 0.02 % in 2002, to 0.19 % in 2013

As regards the share of Romanian export of the European Union export, an ascending trend was registered, the increase being from 0.04 % in 2002 to 0.4 % in 2013.

For the economy of a country to be in a favorable situation, the export value has to be higher than the import value. In order to have this situation in Romania, the import/export coverage ratio was calculated, and the results are presented in table 8.

Table 8. Import/export coverage ratio and its dynamics

Specification	1990	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
The degree for covering the import by exports	171.4	16.9	63.4	35.6	19.8	16.3	19.5	14.5	35.7	58.5	55.9	43.9	44.9
Fixed base indices 1990 (%)	100.0	9.9	37.0	20.8	11.6	9.5	11.4	8.5	20.8	34.1	32.6	25.6	26.2
Fixed base indices 2002 (%)	-	100.0	375.1	210.7	117.2	96.4	115.4	85.8	211.2	346.2	330.8	259.8	265.8

Source: Own calculations

If in 1990, the import/export coverage ratio was of 171 % because the value of exports was higher than the value of imports, from 2002 to 2011 the import/export ratio has been very low, from 63.4 % in 2003 to 14.5 % in 2008. Since 2009, the import/export coverage ratio has started to increase, in 2009 being of 35.7, in 2010 of 58.5 % and in 2011 of 55.9%. A very low import/export coverage ratio is very unfavorable because this indicator shows the balance of trade.

In 2011, at the international level, the fruit consumption was of 74.1 kg and in European Union was of 100.1 kg, according to the data of Food and Agriculture Organization of the United Nations. Consumption and its dynamics for Romania are shown in Table 9.

Table 9 Fruit consumption in Romania and its dynamics

Period	Consumption (kg)	Fixed base indices 1990 (%)	Fixed base indices 2002 (%)
1990	59.5	100.0	-
2002	45.4	76.3	100.0
2003	59.6	100.2	131.3
2004	77.4	130.1	170.5
2005	75.9	127.6	167.2
2006	83.2	139.8	183.3
2007	67.8	113.9	149.3
2008	66.7	112.1	146.9
2009	62.3	104.7	137.2
2010	63.3	106.4	139.4
2011	70.5	118.5	155.3
2012	71.1	119.5	156.6
2013	73.7	123.9	162.3

Source: Statistical Yearbook of Romania, 1996, 2007,2012; www.fao.org; own calculations

The fruit consumption in Romania has an ascending trend, but its increase is not significant. In Romania, fruit consumption/person ranges from 45.4 kg in 2002 to 83.2 kg in 2006. However, fruit consumption is still below the quantities recommended by nutritionists for all the benefits it has for human health, being an important source of vitamins, minerals, microelements and helping the prevention of obesity, by decreasing the food energy intake.

Ultimately, trade has to positively affect the economy of a country. Trying to find ways in which the Romanian trade may have a positive impact on the economy, we used the following factors in our analysis: total fruit production, fruit import, fruit export, GDP for agriculture.

We used data regarding Romanian total fruit production for the period 2002-2011, fruit import for 2002-2013, Romanian fruit export for 2002-2013 and Romanian GDP resulted from agricultural activities for the period 2002-2013.

Each of these factors is in a deterministic relation with the others, and each one of them may be influenced by other factors.

We have determined the simple correlation between the total fruit production and agriculture GDP, between the total fruit

production and fruit import and between the total fruit production and fruit export.

In order to emphasize the correlation between the total fruit production and agriculture GDP, we used a polynomial regression function, using Correl. The polynomial regression function based on which the correlation ratio and determination was calculated is of the type $Y= a+bx+cx^2$

Simple correlation ratios and determinations are shown in Tabel 10.

Table 10. Simple correlation ratios for the correlation of the analyzed factors with the total fruit production and their significance

Factorul	ryx	r^2	Semnificativ după r
Agriculture GDP	0.7376	0.5442	*
Fruit import	0.8313	0.6911	*
Fruit export	0.3687	0.1363	-

Source: Own calculations

Analyzing the correlation between agriculture GDP and total fruit production, there is a direct correlation, meaning that the two variables vary in the same direction, therefore, the increase of total fruit production causes the increase of agriculture GDP. The correlation between the total fruit production and agriculture GDP is a significant, medium level correlation. The correlation ratio determined based on a polynomial regression function was ryx = 0.7376, and determination r^2 = 0.5442 (table 10). Ignoring the influence of other factors, determination r^2 = 0.5442 indicates that GDP variation was influenced (54 %) by the variation of total fruit production (Fig.3)

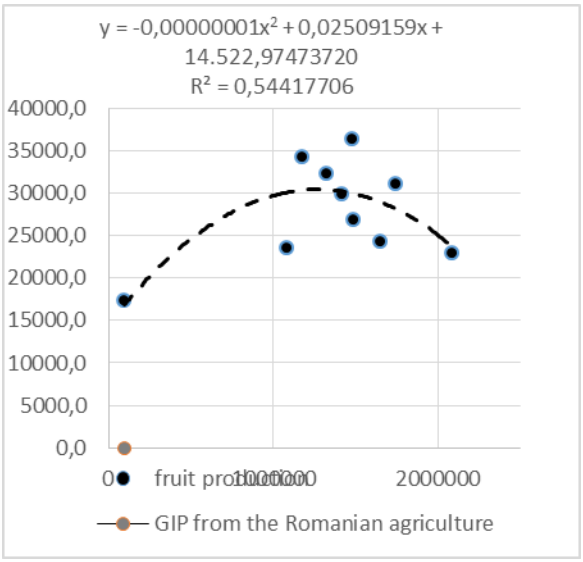

Fig. 3 The correlation between the fruit production and GIP from the Romanian agriculture

During the analyzed ten years, a higher variability coefficient was registered, the minimum production being of 952,000 ton in 2002, and the maximum production was of 2,088,506 ton in 2003.

Another analyzed correlation was the correlation between the fruit import and the total fruit production. According to table 10, the registered correlation ratio was ryx = 0.8313 and determination r^2 = 0.6911. The registered correlation ratio indicates a very strong correlation between fruit import and total fruit production and determination r^2 = 0.6911 indicates that the import variation due to the total fruit production is of 69.1% (Fig.4).

Therefore, a special attention has to be given to fruit production that has to be higher in order to meet the domestic fruit demand and to diminish the fruit import.

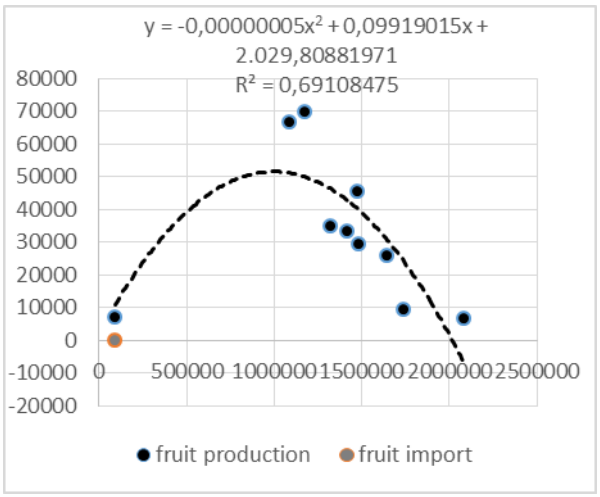

Fig. 4 The correlation between the fruit import and the total fruit production.

The correlation between fruit export and total fruit production was also determined. The correlation ratio resulted from calculation was

of ryx=0.3687, and the determination coefficient was r^2 = 0.1363 (Table 10). The analysis indicated that there is a weak, insignificant correlation between the two factors (Fig.5), meaning that the fruit export is not affected by the increase or decrease of total fruit production.

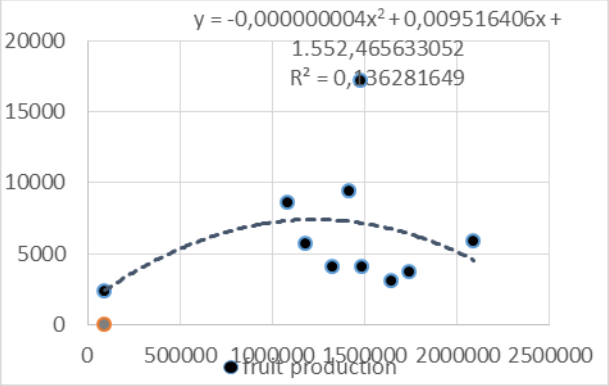

Fig. 5 The correlation between fruit export and total fruit production

Fruit export is affected by other factors, for example, foreign market demand and quality of exported fruits. As regards Romania, quality is important in connection to the quantity of exported fruits.

CONCLUSIONS

Although in Romania, the area cultivated with fruit trees had an ascending trend, the fruit production had an ascending but fluctuating trend, considering that it is directly dependent on the climate conditions and technologies used.

In Romania, as part of the total fruit production, the highest share is of apple and plum production, considering that apples are less perishable compared to other fruit categories and plums are used to produce jam, compote and "țuica", a traditional alcoholic beverage in our country.

The fruit import in Romania in the period 2002-2013 was in average USD Thousands 32,806,7 and the fruit export was in average USD Thousands 9,913.1 what caused degree for covering fruit export from the fruit import at the level of Romania was 30.2%.

Consequently the increase of the fruit production determines the drop of the import value, given the orientation trend of the consumer to locally produced fruits, considered to be more ecological, with better taste, that may be purchased at a better price.

The lack of an organization of local manufacturers in professional associations, the low productivity determined by a weakly developed irrigation system, the insufficient investments in the sector determine the decline of internal production, favouring imports in this manner.

Analysing the correlation in Romania between fruit production, the value of agriculture GDP, and fruit import, a significant correlation is noticed, and the increase of fruit production has a positive impact on GDP and helps diminishing the imports.

For the situation to be improved, fruit production increase is advisable, by increasing productivity as a result of using more efficient technologies, setting up associations of producers, building storage facilities, investing in processing fruits that cannot be exported and cannot be sold to the buyers due to various reasons (bad quality).

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