

TRENDS IN THE PRODUCTION AND MARKETING OF APPLES IN ROMANIA

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Abstract

The paper presents the main tendencies in the production and marketing of apples in Romania during 2012-2016. In order to carry out the present study, a number of indicators were analyzed: the number of apple trees from the national category and from the development regions of Romania; total apple production; average production per apple tree; average price for table apples; average annual apple consumption per capita; imports and exports of apples. Currently, Romania ranks second in terms of apple cultivated area and seventh in terms of apple production at EU level. The data used in the present paper was taken from the National Institute of Statistics and also from specialized international sites. The main tendencies in the production and marketing of apples were highlighted, especially from a quantitative point of view. In this regard, the changes that have occurred from one year to the next have been followed. Since there is a high potential for developing the apple production and marketing sector in Romania, a series of measures are required at both macroeconomic and microeconomic level.

Key words: apples, total apple production, imports, exports, Romania

INTRODUCTION

Nowadays, a greater importance is given to the production and marketing of fruits, both globally and nationally. The importance of fruits is due, on the one hand, to increased nutrient content, and on the other hand, the fruit culture generally does not harm the environment [14].

Apple is a very important food for the health of the population. The apple is composed of the following elements: water; tannin; organic acids; minerals; pectin and a series of vitamins. Nowadays, along with oranges and bananas, apples are among the most appreciated and consumed fruits globally. The apple is a low-calorie food with a significant amount of soluble fiber. In this sense, constant consumption of apples helps to maintain the health of the population. The apple (*Malus Domestica* Borkh) belongs to the Rosaceae family, the Pomoideae subfamily, having over 7,500 apple species globally [1, 13, 15].

Apples are grown in over 80 countries around the world. It is important to remember that in Europe the apple is grown on a large scale in more than 30 countries. In other words, over

37.5% of the countries where apples are grown are found in Europe. The major producers of apples in the European Union are: Poland; France; Italy; Germany; Spain; Hungary; Romania, etc. In our country there are a number of factors contributing to the production of apples, of which the most representative are: favorable climate for apple crop; high quality soil; tradition in apple culture; qualified experts in apple culture; high-quality varieties [2, 6, 14, 17].

In Romania, the production is much lower compared to the ones produced in the main apple-producing countries. For example, in 2016, Poland obtained an apple production of 3,604 thousand tons, compared to 467 thousand tons in Romania. Although significant quantities of apples and other fruit categories are produced at EU level, we are witnessing a low fruit consumption in over 50% of countries. In general, fruit consumption is determined by several factors: the market price for apples; the degree of information on the qualities and benefits of apple consumption; population incomes; age; sex; education in apple consumption, etc [15]. In Romania, the apple production and

marketing sector is an important sector of activity because it provides the quantities of apples needed for the consumption of the population on the one hand and on the other hand represents a segment of the export of agri-food products.

MATERIALS AND METHODS

The data used in this paper was taken from the National Institute of Statistics and from specialized international sites. Various specialized materials have been consulted. The main tendencies in the production and marketing of apples in Romania have been highlighted with the help of important indicators, such as: the number of apple trees in Romania and in the development regions; total apple production achieved; average production per tree apple; average price for table apples; annual apple consumption per capita; imports and exports of apples. The main indicators analyzed in this paper were studied in their dynamics for 2012-2016. The results found in the paper were presented in tables, interpreted and illustrated graphically. The index method was mainly used.

RESULTS AND DISCUSSIONS

The number of existing apple trees in Romanian plantations is an important indicator, which contributes directly to the production of apples made in Romania. At national level, over 50 varieties of apples are grown, of which the most appreciated are: Frumosul de Voinesti; Delia; Ardelean; Ionathan; Golden delicious; Florina; Generos; Fuji; Romulus 1, 2, 3, Rădășeni, Roșu de Cluj, Fălticeni etc [2, 6, 15].

Table 1 presents the evolution of national and regional development indicators. It can easily be noticed that in the period 2012-2016, the number of apple trees varied from year to year. The highest number of apples was recorded in 2012 (27,969,280 trees). At the opposite end, the smallest number of apples was 24,787,332 trees (2016). In 2016, the number of trees dropped by 11.38 compared to 2012. According to statistical data published for 2016, in Romania there were

about 55,000 thousand hectares cultivated with apples. The area cultivated with apples in 2016 put Romania on the second place in the top of the European Union countries with the largest areas cultivated with apples. The first place in this top, as expected, was occupied by Poland with 164,000 hectares of apple trees. It is necessary to specify that the surface with apples covered in statistics includes: plantations that no longer produce; plantations that produce very little and plantations with large productions [18].



Photo 1. Apple blossom

Source: [2]

At the level of the development regions it can be seen that the largest number of apples was recorded in the North-West region. In this region, in 2016, there were 28.15% of the total number of nationally grown apples. From the statistical data presented, it can be seen that in this region, in 2016, the number of apple trees decreased by 6.39% compared to 2012. This decrease in the number of apples was lower compared to the one recorded at national level. In the Central Region, it is noted that the most significant decrease in the number of apples was recorded in 2016 (-23.47%), compared to 2012.

In the Bucharest-Ilfov region, the lowest number of apples was recorded in the analyzed period. It ranged from 58,687 to 70,090 apple trees. In all development regions there were decreases in the number of apples in 2016 compared to 2012 [3].

Table 1. The evolution of the apple trees in Romania and in the development regions, in the period 2012-2016 (number)

Specification	2012	2013	2014	2015	2016	2016/ 2012 (%)
Romania	27,969,280	27,062,046	26,397,942	25,403,345	24,787,332	88.62
NORTHWEST Region	7,455,321	7,109,014	7,146,224	7,197,199	6,979,035	93.61
CENTRAL Region	5,112,209	4,848,562	4,565,962	4,132,595	3,912,838	76.53
NORTHEAST Region	4,911,099	4,636,069	4,757,878	4,397,157	4,217,067	85.86
SOUTHEAST Region	2,111,233	1,966,535	1,824,240	1,756,898	1,952,322	92.47
SOUTH-MUNTENIA Region	3,793,018	3,828,183	3,697,568	3,738,446	3,696,842	97.46
BUCHAREST – ILFOV Region	70,090	62,804	60,680	58,813	58,687	83.73
SOUTH-WEST OLTENIA Region	2,373,239	2,382,037	2,469,061	2,178,201	2,163,069	91.14
WEST Region	2,143,071	2,228,842	1,876,329	1,944,036	1,807,472	84.34

Source: Own calculation based on National Institute of Statistics, Tempo On-line Database, 2018, [12]

In Romania, from the statistical data presented, it can easily be noticed that the apple trees are cultivated in all the development regions. At national level, a number of areas with a high degree of favorability for apple culture have been highlighted. Among these areas were the following: Maramures; Valcea; Arges; Dambovita; Bistrita, etc [2].



Photo 2. Apples in apple trees plantation
 Source: [17]

Apple production made in Romania is an important component on the fruit market. Table 2 shows the evolution of the total apple production achieved at national level and in the development regions in the period 2012-2016. The most significant apple production in Romania was recorded in 2013 (513,580 tonnes). In 2015, the apple production declined compared to 2013-2014. This decrease was due to the lack of rain and very

high temperatures. However, at national level, there were a number of fruit farms that recorded high yields. For example, 70% of the apple production in Itesti in 2015 reached representatives retailers from all over the country, and the remaining 30% was used for the canning industry in Reghin, Vaslui and Itesti [16].

The lowest domestic apple production was 462,935 tonnes (2012). In 2016, there was a slight increase in apple production by 0.93% compared to 2012. According to the data provided by Eurostat, Romania ranked seventh in 2016 in terms of apple production at the level of The European Union. In top three places, apple producers in the European Union ranked, in 2016, the following countries: Poland (3,604 thousand tons); Italy (2,456 thousand tons) and France (1,820 thousand tons). Important positions in the apple-maker list are occupied by: Germany; Spain and Hungary [18].

In the Northwest region, the largest apple production in Romania is obtained. In this region, in 2016, 26.69% of the national production was obtained. The largest apple production in the Northwest Region was 150,705 tonnes (2014). In this region in 2016, there was an increase in apple production by 13.30% compared to 2012. There were also increases for apple production in 2016 as compared to 2012, in the following regions: South-West Oltenia (1.99%); Center (3.34%) and South East (4.46%). The South-Muntenia region ranks second in apple production. In 2016, 24.80% of the nationwide production

was achieved in this region. From the statistical data presented for this region, it is easy to see that apple production in the year 2016 decreased by 1.56% compared to 2012. The fall in apple production in 2016 compared to 2012 was registered in the following

regions: North-East (-11.49); Bucharest-Ilfov (-56.39%); West (-9.09%). The smallest apple production is found in the Bucharest-Ilfov region. These low apple productions in this region are mainly due to the low number of apple trees.

Table 2. The evolution of the total apple production in Romania and in the development regions in the period 2012-2016 (tons)

Specification	2012	2013	2014	2015	2016	2016/ 2012 (%)
Romania	462,935	513,580	513,195	476,059	467,259	100.93
NORTHWEST Region	110,082	139,495	150,705	135,124	124,727	113.30
CENTRAL Region	51,457	58,813	69,146	57,472	53,176	103.34
NORTHEAST Region	84,596	79,694	90,240	81,435	74,878	88.51
SOUTHEAST Region	30,826	33,651	35,668	32,805	32,202	104.46
SOUTH-MUNTENIA Region	117,750	121,440	103,603	103,997	115,918	98.44
BUCHAREST – ILFOV Region	947	607	595	477	413	43.61
SOUTH-WEST OLTENIA Region	42,955	50,950	37,742	37,620	43,814	101.99
WEST Region	24,322	28,930	25,496	27,129	22,131	90.99

Source: Own calculation based on National Institute of Statistics, Tempo On-line Database, 2018, [12]



Photo 3. Apple production
 Source: [6, 16]

The evolution of the average production per apple tree at national level and in the development regions is presented in table 3. From the statistical data presented, it can be noticed that, in 2012, the smallest average production was recorded per apple tree, only 17 kg / tree. Between 2013 and 2016, the

average apple tree production was constant, at 19 kg per tree. In 2016, average apple tree production increased by 11.76% compared to 2012. The highest average yields per apple tree were in the South-Muntenia region. In this region, average production oscillated between 28-32 kg / tree. The average apple

tree production is due mainly to the more productive varieties of apples and their resistance to natural conditions. Average productions per apple trees were achieved in the following regions: Northwest (21 kg / tree in 2014), South West-Oltenia (21 kg / tree in 2013) and South East (20 kg / tree in 2014). The smallest average production on the apple tree is obtained in the Bucharest-Ilfov region. In this region, average apple tree production

has dropped by 50% in 2016 compared to 2012. In this region in 2016 there was an average apple production of only 7.00 kg, compared to 19.00 kg / tree obtained nationwide. In the Bucharest-Ilfov region, only 36.84% of the average national apple tree production was recorded in the year 2016. Other lower average productions compared to the national one were achieved in the Central Region (10.00-15.00 kg / tree).

Table 3. Evolution of the average production per apple tree in Romania and in development regions during the period 2012-2016 (kg / tree)

Specification	2012	2013	2014	2015	2016	2016/2012 (%)
ROMANIA	17.00	19.00	19.00	19.00	19.00	111.76
NORTHWEST Region	15.00	20.00	21.00	19.00	18.00	120.00
CENTRAL Region	10.00	12.00	15.00	14.00	14.00	140.00
NORTHEAST Region	17.00	17.00	19.00	19.00	18.00	105.88
SOUTHEAST Region	15.00	17.00	20.00	19.00	16.00	106.66
SOUTH-MUNTENIA Region	31.00	32.00	28.00	28.00	31.00	100.00
BUCHAREST – ILFOV Region	14.00	10.00	10.00	8.00	7.00	50.00
SOUTHWEST OLTENIA Region	18.00	21.00	15.00	17.00	20.00	111.11
WEST Region	11.00	13.00	14.00	14.00	12.00	109.09

Source: Own calculation based on National Institute of Statistics, Tempo On-line Database, 2018, [12]

The average price for table apples in Romania has been influenced by several factors, such as: internal availability for human consumption; apple demand; imports, etc. The average price for table apples varied between 2012 and 2015 (Fig.1.).

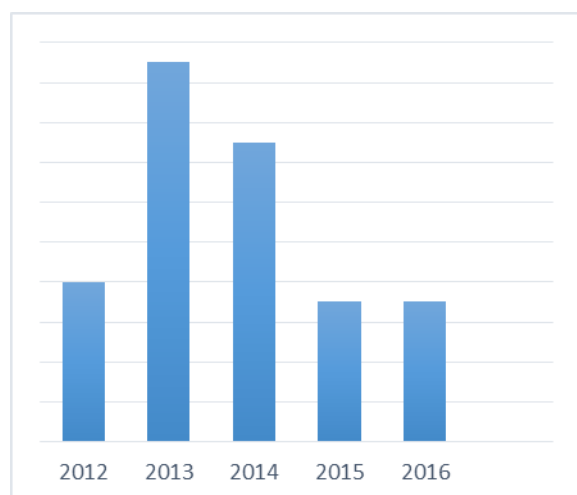


Fig.1. The evolution of the average price for table apples in Romania during the period 2012-2016 (lei/ kg);

Source :Own design based on NIS Tempo-online database 2018 [12]

In 2016, it is noticed that the price remained constant compared to the year 2015. The high average price for table apples was 2.79 lei / kg

(2013). At the opposite end, the lowest price was 2.67 lei / kg (2015-2016). It can be seen that in 2016, the price recorded a slight decrease, by 0.38% compared to 2012.

Average annual apple consumption per capita in Romania during the analyzed period recorded an upward trend (Fig.2.). The highest average apple consumption was 28.4 kg / inhabitant (2016) and the lowest consumption was 20.76 kg / inhabitant. In 2016, apple consumption increased by 36.80% compared to 2012.

In Romania, there is a relatively low consumption of apples, compared to other countries in the European Union or in the world. For example, the Netherlands consumes an average of 40 kilograms of apples. In the United States, consumption is over 40 kilograms of apples per capita [6].

In the period 2012-2015, Romania's apple imports have risen steadily. The largest quantity of apple imports was 137,679 tonnes (2015), and the smallest was 67,000 tonnes (2012).

In 2015, Romania's apple imports increased by 105.49% compared to 2012.

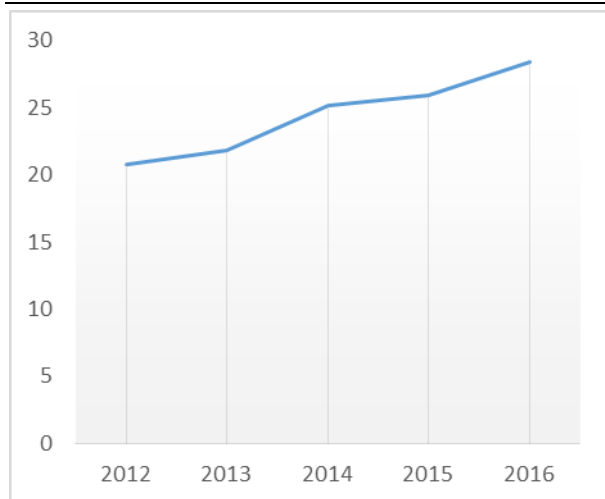


Fig.2. Average annual apple consumption per capita in Romania, 2012-2016 (kg / inhabitant)

Source: [4, 5, 10, 11, 12]

Romania's apple exports during the analyzed period were significantly lower than the imports.

In 2015, 53,573 tonnes were exported compared to 137,679 tonnes imported. The smallest exports were recorded in 2014 (38,222 tons), and the largest exports of apples were 53,373 tons (2015). In 2015, apple exports increased by 0.70% compared to 2012 (Fig.3.).

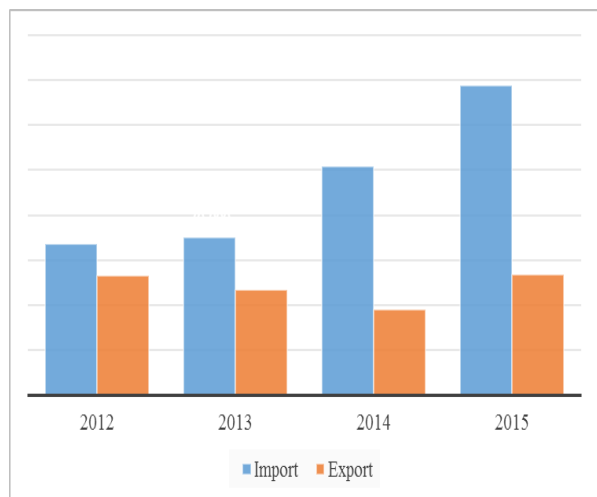


Fig. 3.Evolution of import and export of apples in Romania, in 2012-2015 (tons)

Source: [4, 5, 10]

According to official data, in 2016, substantial quantities of apples from Poland were imported in Romania, although our country ranks 7th in the top of apple producers in the European Union. Apple's value imports from Poland amounted 21.5 million euros in 2016.

Apples are imported in large quantities from Poland because they are at lower prices than the domestic ones [7].

In 2016, Romania also made significant apple imports from: Italy (8.5 million euros); Germany (3.3m euros); Hungary (EUR 1.6 million) and Austria (EUR 1.5 million). During the analyzed period, there was a trade deficit in apple-commodity trade, as follows: 2012 (-18.1 million); 2013 (-18.4 million); 2014 (-20.8 million); 2015 (-31.3 million) and 2016 (-38.1 million) [18].

It can be noticed that, in the analyzed period, the trade deficit in apple trade was significantly increased.

In Romania, to support the fruit and vegetables sector, financial support is provided, both from European funds and from national funds.

For example, the maximum amount of oil purchased and used for which financial support is granted, for orchards, is 130 liters per hectare [9].

In order to increase the competitiveness of the apple production and marketing sector in Romania, the following measures are imposed:

- The rejuvenation of plantations;
- Stimulation of investments;
- Stimulating surfaces with high quality fertilizers;
- Increasing mechanization of works;
- Reconversion of land;
- Increase storage space, etc.[8]

CONCLUSIONS

The main trends in the production and marketing of apples in Romania during 2012-2016 were:

- In 2016, at national level, were recorded about 55,000 thousand hectares cultivated with apples;
- The number of apples in the existing plantations at national level have changed from one year to the next;
- The highest number of apples was 27,969,280 (2012), and the lowest number of apples was recorded in 2016 (24,787,332 apples);
- The Northwest region has been remarked

within the regions of Romania with the highest number of apples in 2016;

-The Bucharest-Ilfov region, in 2016, was evidenced by the lowest number of cultivated apples (58,687 apples);

-The highest apple production at national level was 513,580 tons (2013);

-Romania is ranked 7th in the ranking of apple producers in the European Union in 2016;

-in 2014, the largest apple production was obtained in the North-West region (150,705 tons);

-In 2016, in the Bucharest-Ilfov region, apple production decreased by 56.39% compared to 2012;

-19 kilograms per tree was average apple production, between 2013 and 2016, at national level;

-In 2013, in the South-Muntenia region, the highest average apple tree production (32 kg / tree) was achieved. At the opposite end, in 2016, in the Bucharest-Ilfov region, the smallest average production was recorded per apple tree (7.0 kg / tree);

-2.79 lei / kg was the highest average price for table apples registered at national level in 2013;

-In 2016, the highest average apple consumption per capita (28.4 kg / inhabitant) was recorded at national level. In Romania, a smaller quantity of apples is consumed compared to other countries;

-During the analyzed period imports of apples were higher than apple exports. This phenomenon is explained by the fact that imported apples are less expensive compared to internally produced apples.

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