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STABILITY OF FRESH AND PROCESSED FRUIT SUPPLY. ROMANIA IN THE EUROPEAN SINGLE MARKET CONTEXT

ABSTRACT

The paper provides a framework for understanding the fruit supply situation, starting from two major supply sources: domestic supply and imports, with the goal to ensure a stable fruit supply synchronized with the consumption trends. Even since Romania's accession to the European Union, the fruit sector has been confronted with serious structural deficits, and the measures to increase competitiveness within the Common Agricultural Policy have had limited effects, mainly at micro-economic level. Self-sufficiency has decreased throughout the sector, and changes in the consumption structure and increase of dependence on imports have been also noticed. It is expected that the effects of the thematic sub-program for the fruit sector will become visible on the medium term, through self-sufficiency increase.

Key words: fruit market, Common Agricultural Policy, consumption, imports.

JEL Classification: Q11, Q13.

1. INTRODUCTION

At the European Union (EU) level, there is no unique, homogeneous and common fruit supply chain. The market structure varies at each level in the supply chain, depending on the Member States involved. The European Commission has proposed measures to improve the functioning of the food supply chain, as in some cases, the unfair commercial practices are affecting the weaker producers. For example, farmers could be affected if the costs generated by the unfair commercial practices are transferred backwards along the food supply chain. In this respect, the Supply Chain Initiative (SCI) was developed within the High Level Forum level, established by the Commission. The goal of this initiative is to increase fairness in the commercial relations within the food supply chain.

2. STATE OF KNOWLEDGE

The structure of the supply chains and of the enterprises involved in each supply stage significantly varies as regards products and geographical areas. A simplified structure of the supply chain presupposes the existence of several stages: the production stage (the farms, including small and large family farms, producers' organizations, cooperatives and private enterprises; the collection stage, the processing stage and the distribution and marketing of the agri-food products (wholesalers, traders, transport companies, food producers, feed for animals and beverages, commercial workers and supermarkets).

There is no unique, homogeneous and common fruit supply chain at EU level. The market structure varies at each level in the supply chain, depending on the Member States involved. Romania is one of the important fruit producers. Romania owns 43% of the plum orchards, 11% of the apple orchards, 4% of the area under morello cherry and cherry orchards and 3% of the area with pear and apricot tree orchards in the EU. Romania ranks 5th in the EU by the orchard areas and 6th in terms of physical output; our country produces 4% of the fruit production value in the EU, ranking 7th in this respect.

A report by the EU Commission shows that in the fruit sector the average apple yield will be 17% higher by the year 2030 compared to the average yield from the last decade, while areas will decrease by the same rate of –0.7% per year; under the background of these evolutions, it is expected that the EU production will get stabilized at around 12.5 million tons of apples by the year 2030. The domestic fresh fruit consumption per capita declined by 0.7% per year in the period 2006–2016, even though the EU school fruit scheme was implemented; this can be explained by consumers' behaviour, who, as their living standard has increased, are getting oriented towards trendier products, like tropical or forest fruits; it is expected that the decreasing trend will continue, yet at a slower rate (–0.3% per year until 2030).

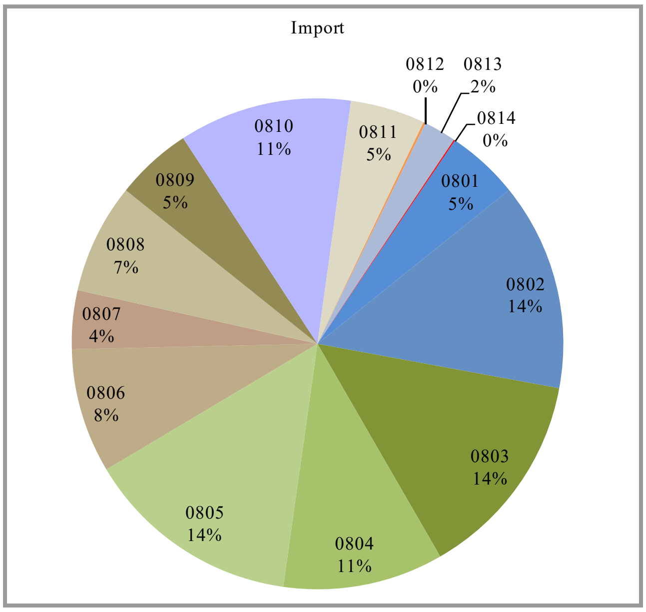
As regards fresh apple exports, the EU market increased by almost 5% in the period 2006–2016, despite the Russian import ban. The sector managed to find alternative markets after the ban introduction in 2014, partially compensating the loss of the Russian market. In the perspective, the EU exports of fresh apples will continuously increase (+1.8% per year until 2030), while imports will continue to decrease at a slower rate (–0.5% per year until 2030).

3. MATERIAL AND METHOD

For the purpose of this paper, certain indicators were analyzed regarding fruit consumption level and trend, farm, consumer and import prices, self-supply level and foreign trade. The self-supply degree, expressed in percentages, shows to what extent domestic production covers the domestic consumption needs and is calculated by ratio of domestic production to available supply. Relevant databases were used: national statistics and Eurostat database.

4. RESULTS AND DISCUSSIONS

Fresh and processed fruit trade – the European context. The (extra-EU and intra-EU) imports of fresh fruit in the EU totalled over 46 billion euro in 2017. Around 57% of imports are represented by meridional and exotic fruit (39% – code 0803; 0804; 0805) and nuts and other hard-shell fruit (19% – code 0801; 0802) (Fig. 1).



Source: http://trade.ec.europa.eu/tradehelp/statistics.

Figure 1. EU fresh fruit import structure, 2017.

The main markets of origin for meridional and exotic fruit imports are:

– Columbia, Ecuador and Costa Rica for bananas (66% – code 0803);

– Costa Rica, Peru, Chile, Israel and Brazil for dates, figs, pineapples, avocado, etc. (63% – code 0803);

– South Africa, Morocco, Argentina for citrus fruit (55% – code 0805).

The main suppliers of nuts and other hard-shell fruit are:

– Vietnam, India, Philippines and Bolivia (87% – code 0801) for coconuts, Brazil nuts and cashew nuts etc.;

– USA supplies 56% of imports of other hard-shell fruit (code 0802).

The value of exports is more than 29 billion euro. Around 45% of fresh fruit exports come from citrus (17%), apples (12%) and other fruit (16%) exports. In the EU trade with fresh fruit, the trade balance is negative for most products, except for apples (0808) and provisionally preserved fruit (0812) (Fig. 2).

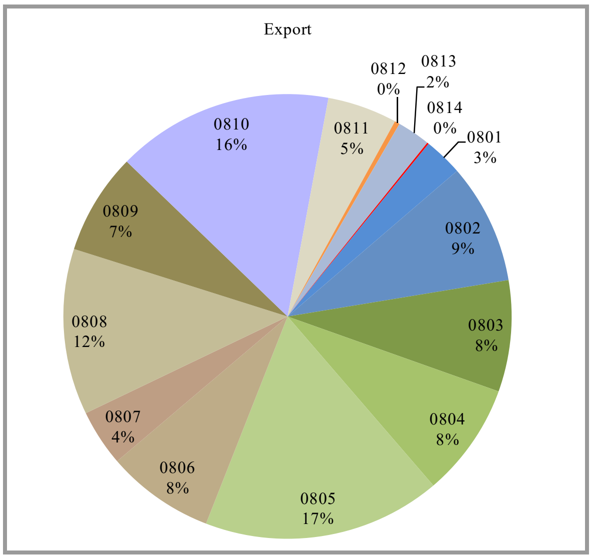


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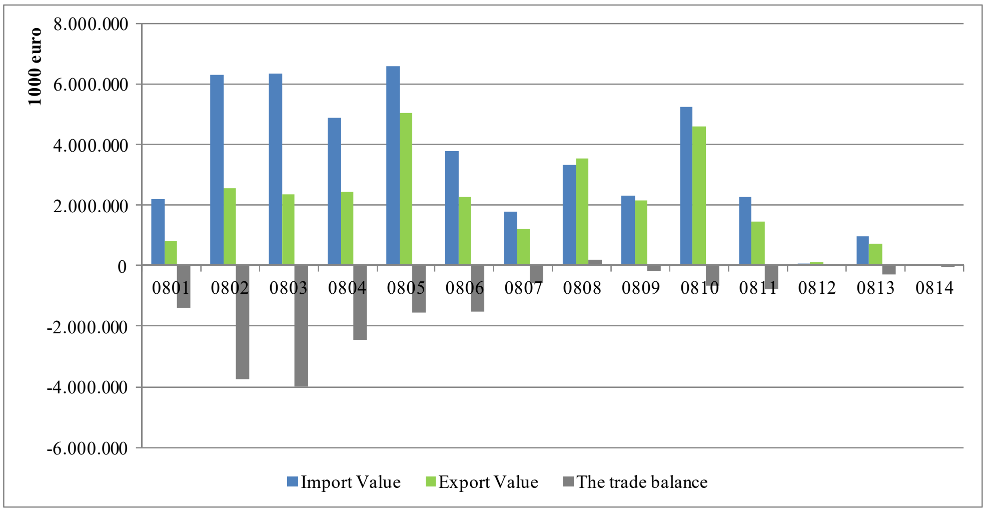
Figure 2. EU fresh fruit export structure, 2017.

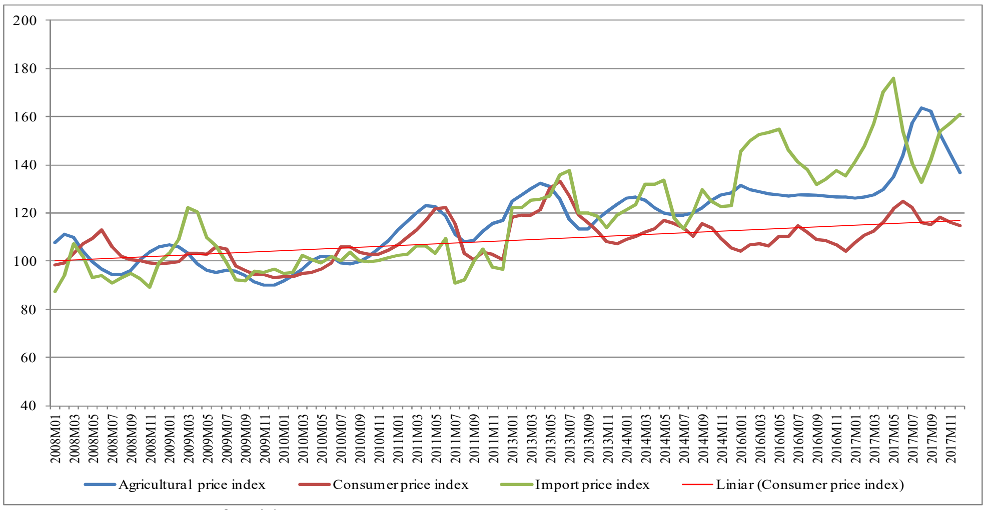
Romania's consumption and trade with fresh and processed fruits. In Romania, both the agricultural fruit prices and the import prices have seasonal fluctuations; the monthly consumer fruit price evolutions are characterized by higher stability, following, in most cases, the import price curve; consumer prices are influenced to a lesser extent by the agricultural fruit prices.



Source: http://trade.ec.europa.eu/tradehelp/statistics.

Figure 3. Trade balance in the fresh fruit trade.

The available fruit quantity for consumption is fluctuating, following, in general, the annual production trend. However, the annual average consumption of fruit and fruit products in fresh fruit equivalent per capita has followed an upward trend. In 2015, consumption per capita was 87.8 kg, to reach 96 kg in the year 2016. Compared to the 2007–2011 average, consumption increased by 18% in 2008–2016.



Source: Eurostat [prc_fsc_idx].

Figure 4. Monthly evolution of fruit price indices in Romania, 2008–2017.

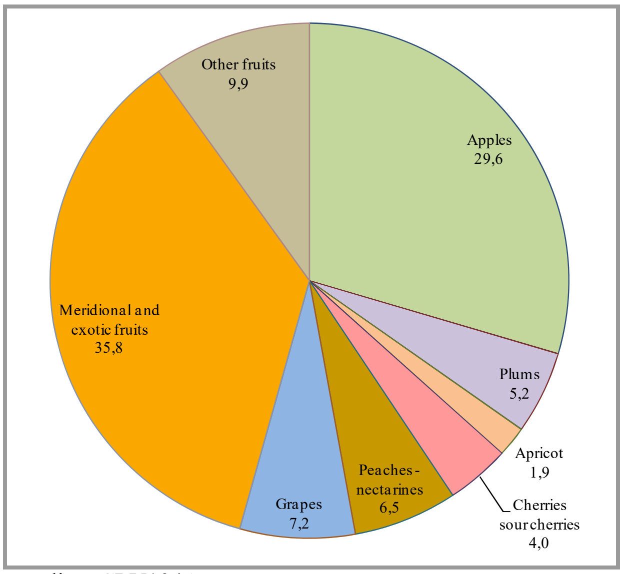
This trend is given by the increase of consumption in all fruit types, but higher consumption increases were noticed in peach and nectarine consumption, by 94%, in meridional and exotic fruit by 23%, in apricots by 17% and in apples by 15%. In the year 2016, the consumption structure is mainly covered by meridional and exotic fruit and by apples, with 35.8% and 29.6% respectively (Fig. 5).

The self-sufficiency level in the fruit group slightly varies, from year to year, yet it is on a decreasing trend. In the period 2004–2007, domestic production covered between 91% and 77% of the consumption needs, and in the recent period between 83% and 67%.

The self-supply degree decreased mainly in peaches, from 58% in 2004 to only 18% in 2015, in the context of orchards ageing and cutting down, but also due to consumption increase. In apples, there was a shift from self-sufficiency to a self-supply degree of 95% in 2013, 91% in 2014 and 82% in 2015.

Consumption is on the rise, with a re-orientation towards meridional and exotic fruits. Out of this reason, after the accession, the trade balance deficit deepened for all fruit types and the dependency on imports increased.

The fruit import value in the period 2003–2007 (Table 1) was over 144 million euro/year, with an average imported quantity of over 409 thousand tons of fruit/year (Table 2), while export value was around 37 million euro/year, with an average quantity of over 35 thousand tons of fruit/year.



Source: INS, Tempo-online, CLV104A.

Figure 5. The quantitative structure of fruit consumption, 2016.

Table 1

The evolution of Romania's fresh fruit import value, thousands euros

	2003–2007	2008–2012	2013–2017	2008–2012/ 2003–2007	2013–2017/ 2008–2012	2017/ 2007
TOTAL 0800 Edible fruit and nuts; peel of citrus fruit or melons	144,046	203,834	463,095	1.4	2.3	2.6
0801 Coconuts, Brazil nuts and cashew nuts	975	1,880	4,684	1.9	2.5	5.6
0802 Other nuts, fresh or dried	4,878	12,617	29,290	2.6	2.3	4.5
0803 Bananas including plantains	51,121	45,678	101,352	0.9	2.2	1.9
0804 Dates, figs, pineapples, avocados	2,006	5,219	19,617	2.6	3.8	6.4
0805 Citrus fruit, fresh or dried	47,023	65,406	135,394	1.4	2.1	2.3
0806 Grapes fresh or dried	7,779	13,057	30,832	1.7	2.4	2.6
0807 Melons and papaws, fresh	1,559	3,601	8,390	2.3	2.3	3.2
0808 Apples, pears and quinces, fresh	13,424	22,416	47,462	1.7	2.1	2.4
0809 Apricots, cherries, peaches plums and sloes, fresh	7,923	13,117	31,051	1.7	2.4	2.4
0810 Other fruit, fresh	3,916	8,001	23,068	2.0	2.9	4.0
0811 Fruit and nuts, uncooked or cooked	410	1,850	4,125	4.5	2.2	8.2
0812 Fruit and nuts, provisionally preserved	604	621	1,361	1.0	2.2	2.8
0813 Fruit, dried, other than that of headings 0801 to 0806	1,737	5,344	12,477	3.1	2.3	6.9
0814 Peel of citrus fruit or melons	12	12	20	1.1	1.6	2.8

Source: http://trade.ec.europa.eu/tradehelp/statistics.

After the accession to the EU, Romania's fruit foreign trade is mainly on the intra-Community market: 92% of the import value and 98% of the export value in the year 2018. In 2017, the fresh and processed fruit import value reached 718,470,997 euro, out of which 89% fresh fruit. In the period 2008–2017, the trade flows increased as follows: the average annual value of imports in the first five years was almost 204 million euro/year, with a quantity of almost 393 thousand tons/year; in the last period, imports doubled.

Table 2

The evolution of Romania's quantitative import of fresh fruit, tons

	2003–2007	2008–2012	2013–2017	2008–2012/ 2003–2007	2013–2017/ 2008–2012	2017/ 2007
TOTAL 0800 Edible fruit and nuts; peel of citrus fruit or melons	409,117	393,455	684,557	1.0	1.7	1.7
0801 Coconuts, Brazil nuts and cashew nuts	1,117	1,262	1,716	1.1	1.4	2.0
0802 Other nuts, fresh or dried	1,667	4,371	7,768	2.6	1.8	4.8
0803 Bananas including plantains	130,184	83,141	144,369	0.6	1.7	1.3
0804 Dates, figs, pineapples, avocados	2,339	4,665	15,219	2.0	3.3	5.0
0805 Citrus fruit, fresh or dried	143,292	158,700	239,927	1.1	1.5	1.5
0806 Grapes fresh or dried	17,225	21,169	38,557	1.2	1.8	2.2
0807 Melons and papaws, fresh	10,864	19,918	29,276	1.8	1.5	1.8
0808 Apples, pears and quinces, fresh	66,999	51,250	110,338	0.8	2.2	2.2
0809 Apricots, cherries, peaches plums and sloes, fresh	23,958	25,096	55,280	1.0	2.2	2.4
0810 Other fruit, fresh	8,601	14,678	21,247	1.7	1.4	1.9
0811 Fruit and nuts, uncooked or cooked	318	1,387	2,492	4.4	1.8	6.1
0812 Fruit and nuts, provisionally preserved	1,474	1,085	1,754	0.7	1.6	1.3
0813 Fruit, dried, other than that of headings 0801 to 0806	1,061	6,711	16,510	6.3	2.5	14.1
0814 Peel of citrus fruit or melons	4	6	3	1.6	0.5	0.6

Source: http://trade.ec.europa.eu/tradehelp/statistics.

In the first five years after Romania's accession to the EU, the average annual fruit export value was 37 million euro/year (Table 3), with an average quantity of 35 thousand tons/year. In the last period, exports increased by 30% on the average compared to the period 2008–2012.

In the last four years of the analysis, the quantitative import doubled both in apples and in cherries and morello cherries (Table 4). The imported quantity represents the equivalent of an area under apple orchards of 3678 ha with an average yield of 30 tons/ha. The imports of cherries and morello cherries represent the equivalent of an area of 3685 ha of orchards and an average yield of 15 tons/ha.

In the fruit group (08), the export price is generally higher than the import price (Fig. 6). Nevertheless, in group 0808 (apples, pears and quinces), starting with the year 2007, the access on foreign markets was made through smaller prices than the prices of imported products (by 57% smaller in 2015 and by 50% smaller in 2016).

Table 3

The evolution of Romania's fresh fruit export value, thousands euros

	2003–2007	2008–2012	2013–2017	2008–2012/2003–2007	2013–2017/2008–2012	2017/2007
TOTAL 0800 Edible fruit and nuts; peel of citrus fruit or melons	37,460	55,822	75,135	1.5	1.3	1.7
0801 Coconuts, Brazil nuts and cashew nuts	30	373	144	12.4	0.4	18.8
0802 Other nuts, fresh or dried	20,753	22,501	40,969	1.1	1.8	1.8
0803 Bananas including plantains	18	1,937	478	107.2	0.2	4.4
0804 Dates, figs, pineapples, avocados	44	774	221	17.5	0.3	1.0
0805 Citrus fruit, fresh or dried	141	2,564	1,137	18.2	0.4	1.2
0806 Grapes fresh or dried	454	741	598	1.6	0.8	0.3
0807 Melons and papaws, fresh	76	271	229	3.6	0.8	3.0
0808 Apples, pears and quinces, fresh	1,059	3,965	2,744	3.7	0.7	0.5
0809 Apricots, cherries, peaches plums and sloes, fresh	3,155	2,859	1,861	0.9	0.7	0.7
0810 Other fruit, fresh	2,173	2,149	3,936	1.0	1.8	4.1
0811 Fruit and nuts, uncooked or cooked	6,519	11,737	12,069	1.8	1.0	1.1
0812 Fruit and nuts, provisionally preserved	2,607	2,322	3,873	0.9	1.7	3.0
0813 Fruit, dried, other than that of headings 0801 to 0806	319	272	510	0.9	1.9	1.0
0814 Peel of citrus fruit or melons	0	1	1	…	1.4	…

Source: http://trade.ec.europa.eu/tradehelp/statistics.

Table 4

The evolution of Romania's quantitative export of fresh fruit, tons

	2003–2007	2008–2012	2013–2017	2008–2012/2003–2007	2013–2017/2008–2012	2017/2007
TOTAL 0800 Edible fruit and nuts; peel of citrus fruit or melons	35,048	51,385	38,779	1.5	0.8	0.6
0801 Coconuts, Brazil nuts and cashew nuts	25	128	52	5.0	0.4	3.8
0802 Other nuts, fresh or dried	9,470	6,407	7,903	0.7	1.2	1.0
0803 Bananas including plantains	28	3,086	575	108.7	0.2	4.6
0804 Dates, figs, pineapples, avocados	24	509	146	21.6	0.3	0.6
0805 Citrus fruit, fresh or dried	225	3,708	1,808	16.5	0.5	1.0
0806 Grapes fresh or dried	1,081	685	993	0.6	1.5	0.5
0807 Melons and papaws, fresh	647	1,210	1,222	1.9	1.0	6.1
0808 Apples, pears and quinces, fresh	4,382	19,395	12,504	4.4	0.6	0.3
0809 Apricots, cherries, peaches plums and sloes, fresh	7,747	4,293	2,448	0.6	0.6	0.5
0810 Other fruit, fresh	1,543	3,406	1,427	2.2	0.4	1.9
0811 Fruit and nuts, uncooked or cooked	4,871	6,622	6,344	1.4	1.0	0.8
0812 Fruit and nuts, provisionally preserved	4,181	1,835	2,482	0.4	1.4	1.7
0813 Fruit, dried, other than that of headings 0801 to 0806	816	89	848	0.1	9.5	0.1
0814 Peel of citrus fruit or melons	0	0,2	0,4	–	2.0	–

Source: http://trade.ec.europa.eu/tradehelp/statistics.

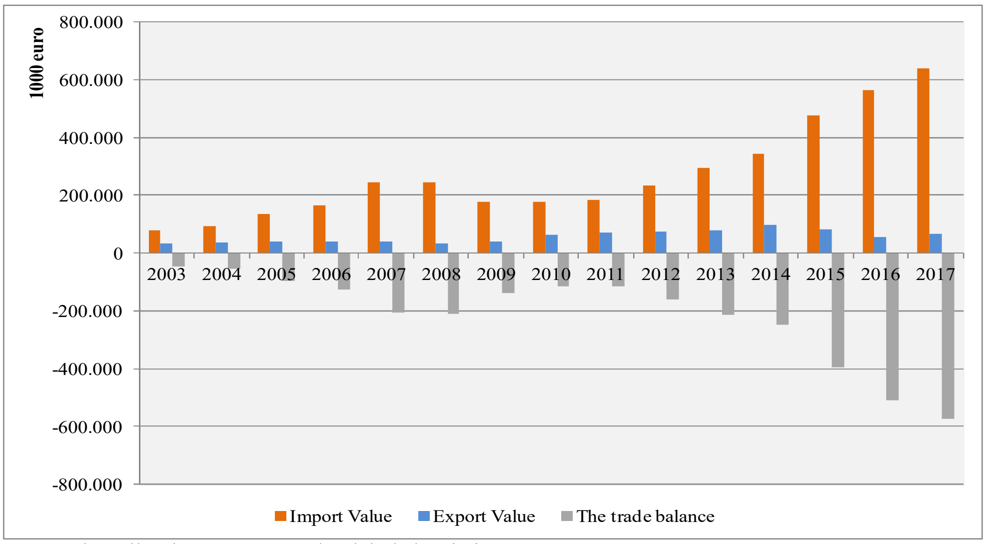


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Figure 6. Foreign trade in fresh fruit.

For the fruit group 0809 (apricots, cherries, peaches, nectarines, plums, sloes, fresh), export prices are higher than import prices; the only years when they were lower are 2007 and 2008. The trade balance is negative. In the period 2008–2017, the trade deficit in the fruit group increased three times compared to the 2000–2007 average. Compared to the year 2000, the trade deficit increased almost thirteen times in 2017.

In the apple trade, Romania imports at higher prices and it exports at lower prices (Fig. 7). The difference between these two prices is most often 0.2 euro/kg. A maximum import price was reached in 2017, i.e. 0.497 euro/kg.

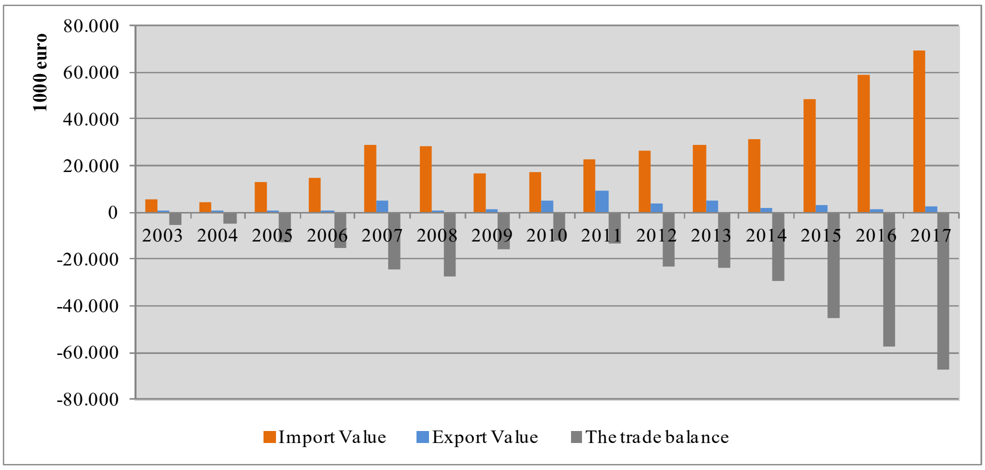

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Figure 7. Foreign trade in apples.

The structure of fresh and processed fruit imports and exports in 2017. In 2017, the value of fresh fruit imports was 638,182,770 euro. More than half of the value of imports is represented by meridional and exotic fruits. Citrus represent the fourth part of the fruit import value, while bananas almost 23%. The fruit group 0808 Apples, pears, and quinces, fresh, with a value of 69,679,705 euro, ranks 3rd in terms of importance. For the import of apples, there are two important suppliers: Poland (40%) and Italy (29%).

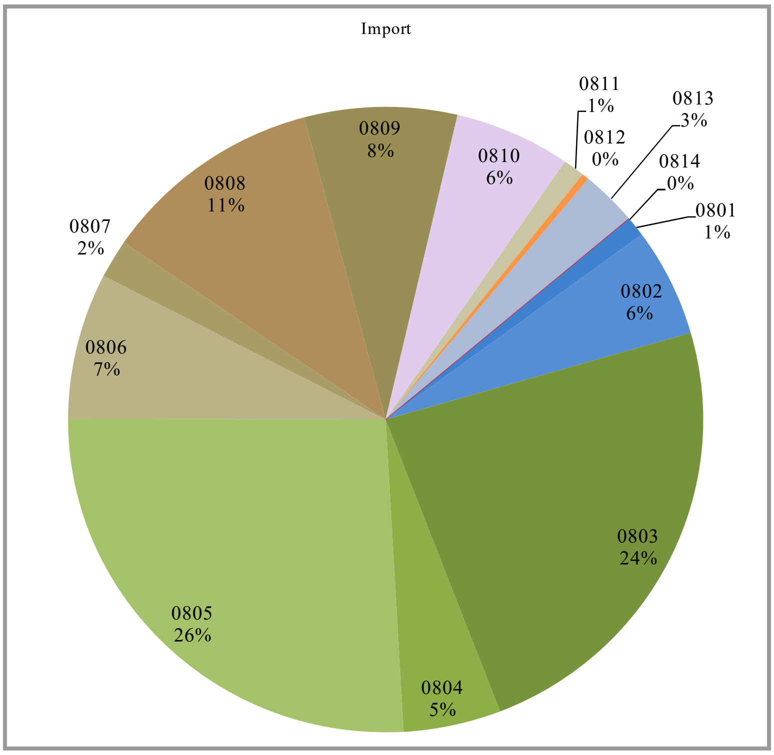

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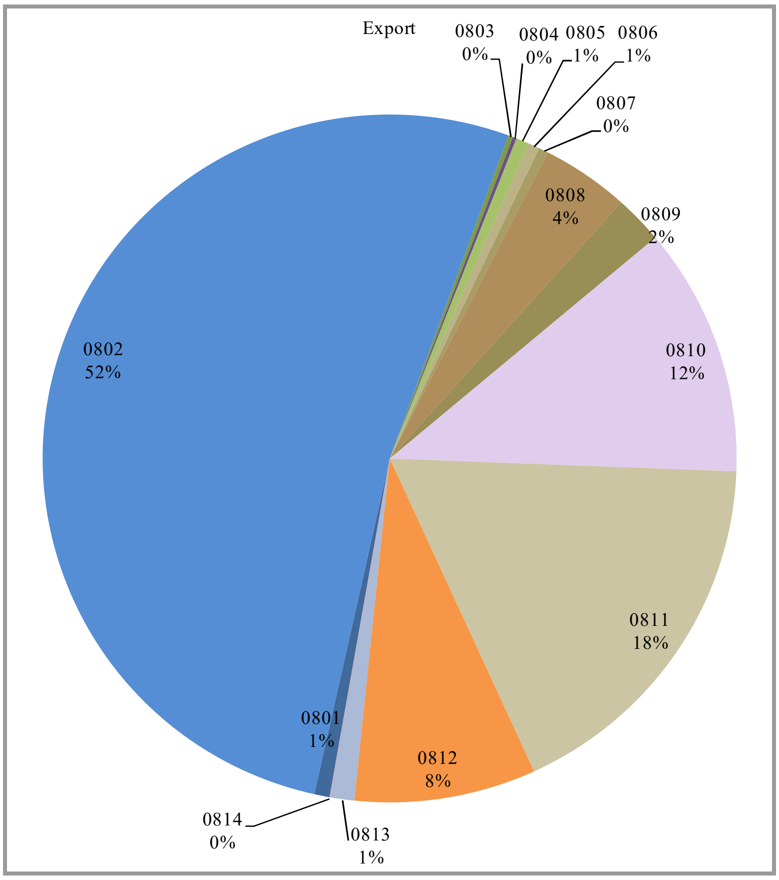
Figure 8. Romania's fresh fruit import structure, 2017.

In 2017, the fresh fruit export in value terms was 64,869,409 euro. Group 0802 *Other hard-shell fruit, fresh or dry, even without shell* have the highest share in fresh fruit export, i.e. 47%. As this group consists of almonds, hazelnuts, walnuts, chestnuts, pistachios, macadamia nuts, areca nuts and others, most probably a good part of them are re-exported products.

The main markets of origin are Hungary, Germany, Bulgaria and Italy, and the most important destination markets are France, Germany, Italy and Croatia. The situation is also similar for the group 0805: *Citrus fruit, fresh or dry*. In the value of exports, group 0808 *Apples, pears and quinces* ranks 3rd, with 2,416,675 euro, much under Romania's potential. The apple exports represent the 29th part of apple imports.



Source: http://trade.ec.europa.eu/tradehelp/statistics.

Figure 9. Romania's fresh fruit export structure, 2017.

In 2017, the import of processed products in value terms totalled 80,288,227 euro, and exports 9,917,903 euro, consisting of three groups of products: group 2006 *Vegetables, fruit, preserved with sugar*, group 2007 *Jams, fruit jellies, marmalades,* etc., and group 2008 *Fruit and other edible plant parts.*

Romania's import value of *vegetables, fruit, nuts, shell fruit and other plant parts, preserved with sugar* was 2,206,232 euro in 2017. 95% of imports came from the intra-EU market, out of which almost one-third from Italy. The export value was 312,488 euro. Almost 36% of exports have the third markets as destination, out of which half goes to the Russian Federation. The trade balance is negative. The import value increased 6.5 times compared to the year 2007.

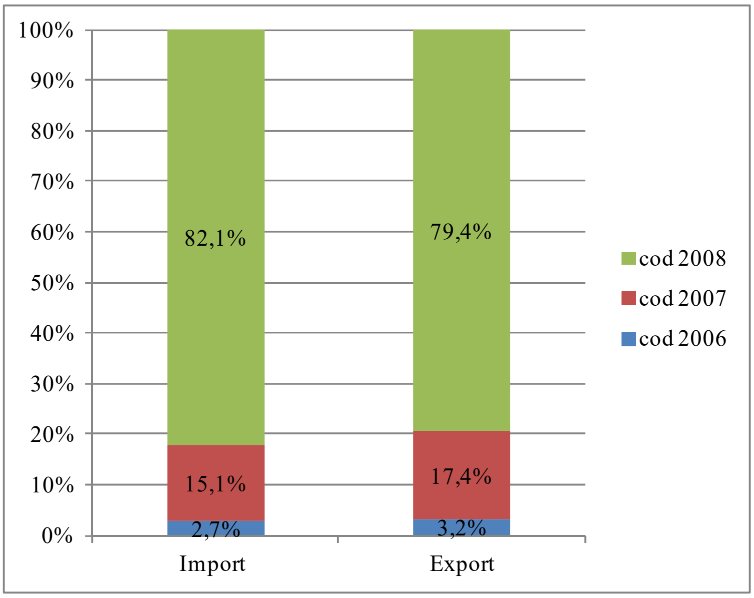


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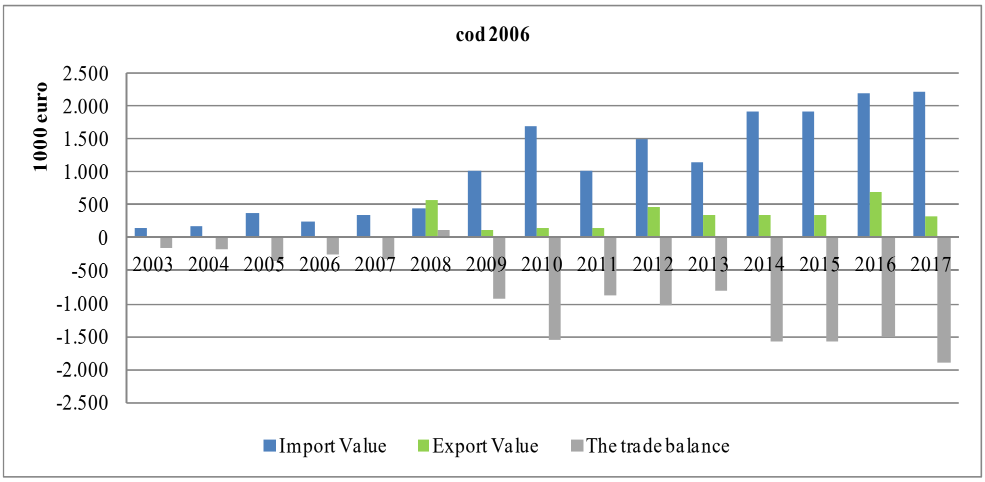
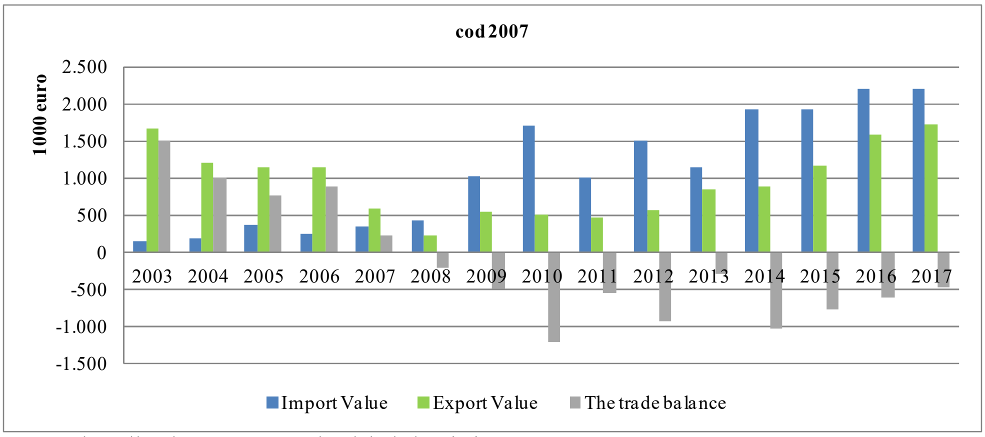
Figure 10. Import and export structure of processed fruit products.



Source: http://trade.ec.europa.eu/tradehelp/statistics.

Figure 11. Foreign trade with sugar preserved fruit products.

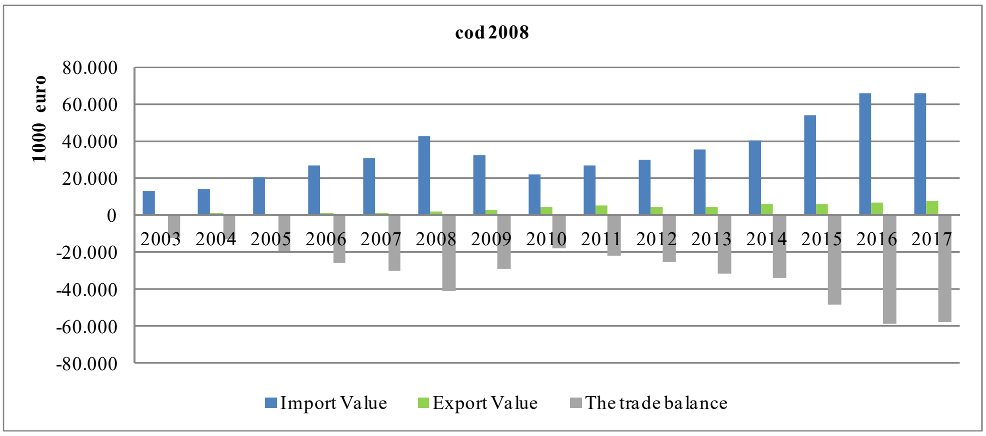
The imports of *jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by boiling in water, with or without added sugar or other sweeteners* (code 2007) account for 15% of total and mainly come from the intra-European market (90%). In the year 2017, these imports reached 12,144,938 euro in value. The main countries of origin are Italy, France and Greece (50%). Compared with imports, the value of exports is low, i.e. 1,728,507 euro. Almost 70% of exports have the EU market as destination, mainly Hungary (36%). The trade balance is negative. The import value increased 2.5 times compared to the year 2007.



Source: http://trade.ec.europa.eu/tradehelp/statistics.

Figure 12. Foreign trade with jams, fruit jellies, marmalades.

The imports of *fruit and other edible plant parts, prepared or preserved by other methods, with or without sugar added* totalled 65,937,057 euro and have the highest share in the imports of processed products, i.e. over 82%. Around 85% of imports come from the European market, 25% from Poland and 22% from Germany respectively. The trade balance is negative, and imports increased 2.1 times compared to the year 2007.



Source: http://trade.ec.europa.eu/tradehelp/statistics.

Figure 13. Foreign trade with fruit products and other edible fruit parts.

5. CONCLUSIONS

Fruit consumption is increasing, with the re-orientation towards meridional and exotic fruits. More than half of the Romanian fruit import value is represented by meridional and exotic fruits. Citrus fruit represent the fourth part of the fruit import value, and bananas almost 23%. The fruit group represented by fresh apples, pears and quinces rank 3rd as importance in the import value.

Apple exports represent the 29th part of the apple imports. In the fruit group (08), the export price is generally higher than the import price:

✓ For group 0808 (apples, pears and quinces), starting with the year 2007, the access on the external markets was ensured by lower prices than the import prices (57% lower in 2015 and 50% lower in 2016). In conclusion, in the apple trade, Romania's apple imports are expensive while apple exports are at lower prices. The difference between these prices is most often 0.2 euro/kg. A maximum import price was reached in 2017, i.e. 0.497 euro/kg.

✓ For the fruit group 0809 (apricots, cherries, peaches, nectarines, plums, sloes, fresh) export prices are higher than import prices, and the only years when these were lower were 2007 and 2008.

Fruit supply stability was achieved on the basis of imports increase. The trade balance is negative. In the period 2008–2017, the trade deficit in the fruit group increased more than three times compared to the 2000–2007 average. If we take the year 2000 as reference, the trade deficit increased almost thirteen times by the year 2017.

In 2017, the value of imports of processed products was of 80,288,227 euro, and the value of exports 9,917,903 euro; the trade consists of three groups of products:

1) *Vegetables, fruit, preserved with sugar* (code 2006) with a negative trade balance; the import value increased 6.5 times compared to the year 2007;

2) *Jams, fruit jellies, marmalades etc.* (code 2007) with a negative trade balance; the import value increased 2.5 times compared to the year 2007;

3) *Fruit and other edible plant parts, prepared or preserved by other methods, etc.* (code 2008) with a negative trade balance; the import value increased 2.1 times compared to the year 2007.

In the last four investigated years, the quantitative imports of both apples and cherries and morello cherries doubled compared to the previous period. The consumer price is less influenced by the agricultural price of fruit and to a higher extent by the import price. In order to have a stable supply from domestic production, that is to cover the consumption needs for apples, cherries and morello cherries from domestic production, investments are needed in new orchards; the necessary investments are about 3700 ha of apple orchards and a similar area for cherry and morello cherry plantations.

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