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ANALYSIS OF THE EVOLUTION OF ROMANIA'S FOREIGN TRADE IN NATURAL HONEY

AURELIAN BULIGA-ȘTEFĂNESCU¹

Abstract: *Romanian honey, a food product of higher quality compared to that obtained in other European countries, is exported extensively (50-60% of the total production). Currently, the Romanian beekeepers are facing the tough competition of the low prices of the honey imported from Ukraine, Poland and the Republic of Moldova. Germany is the largest importer of honey (26%) from Romania. In 2018, Romania exported honey amounting to a total of 41.7 million euros. The Romanian market still sells products at low prices, to the detriment of quality, which is why, in the same year, about 9.7 million euros' worth of honey was imported. In the whole period analyzed (1991-2018) the value of honey exports was significantly higher than the value of imports, thus generating a positive balance of trade.*

Keywords: *honey production, honey import, honey export*

JEL Classification: *Q10, Q13, Q17, O13*

INTRODUCTION

Although Romania ranks first in terms of honey production, most of it is destined for export. For example, in 2017, Romania exported 37% of its domestic production of natural honey, at an average price of 3.7 euros per kilogram. On the other hand, in order to meet its domestic consumption needs, Romania imported cheaper honey from countries such as Moldova, Poland or Hungary, at 2.6 euros per kilogram (7). Although it exports a large part of its domestic honey production, in terms of intra-Community trade, Romania is not among the top EU countries like Hungary or Bulgaria, where the conditions are less favorable for the beekeeping sector. (4). The good quality of Romanian honey was certified by a series of complex tests carried out in Germany, in order to detect genetically modified organisms or residues, for the whole quantity that is exported (9). The beekeeping sector is largely influenced by the climatic conditions and the temperature. Consequently, in unfavorable years, the honey production in Romania decreased and the exports were negatively affected as well.

MATERIALS AND METHODS OF WORK

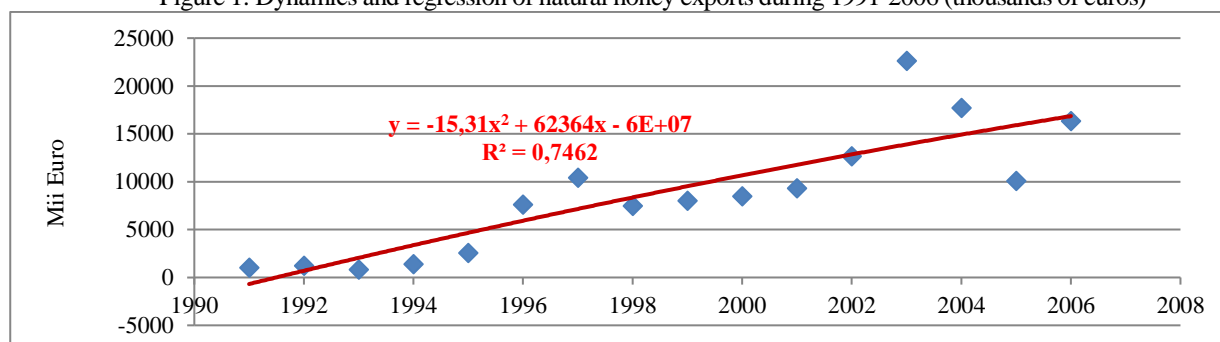
The present research is based on the analysis of the evolution of Romania's export and import of natural honey before and after its accession to the European Union. For this purpose, the statistical data provided by the National Institute of Statistics and International Trade Center (ITC) for the period 1990-2018 were collected and processed using the Excel program. Descriptive statistics was used to interpret them, and the Student t test was used to compare the periods.

RESULTS AND DISCUSSIONS

The evolution of the Romanian exports of natural honey can be drawn as a sinusoidal curve (figure 1). Between 1991 and 2006 there was an increase of 1,462.58% in the value of honey exports. Thus, from 1,045 thousand euros' worth of honey in 1991, Romanian exports reached 16,329 thousand euros in 2006, with 15,284 thousand euros more. The increases were not constant, as there were years that saw lower values, compared to the previous ones. For example, in 1993 there was a minimum value of exports, of only 824 thousand euros. The best year from 1991-2006 was 2003, when 22,633 thousand euros' worth of Romanian honey was exported (figure 1).

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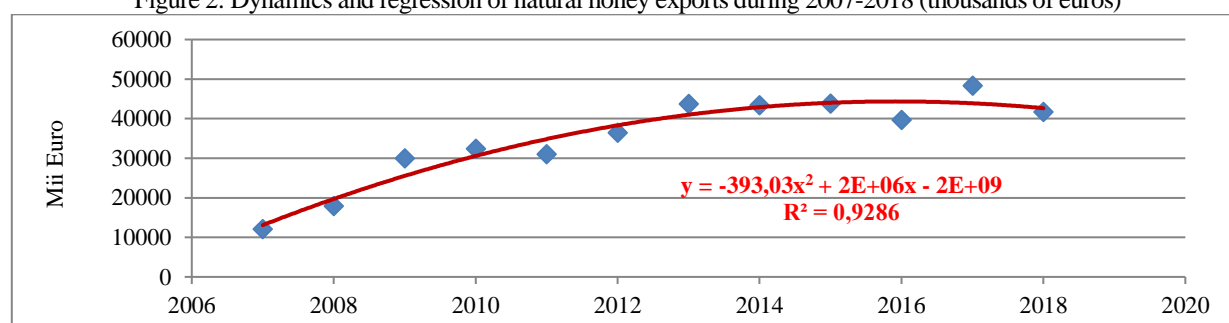
Figure 1: Dynamics and regression of natural honey exports during 1991-2006 (thousands of euros)



Source: Own design based on the data provided by National Institute of Statistics (12)

The post-accession period was prolific for Romanian beekeeping, with its honey production following an upward trend. The value of exports increased from 12,141 thousand euros in 2007, to 41,720 thousand euros, in 2018. The percentage increase was 243.63%. The maximum of exports was registered in 2017, when 48,352 thousand euros' worth of honey was exported. The European funds allocated to the beekeeping sector contributed to the increase in the number of bee families and, implicitly, in the production of honey. Compared to the previous year, in 2008, exports increased by 47.88%, while in 2009 the growth was 66.97%.

Figure 2: Dynamics and regression of natural honey exports during 2007-2018 (thousands of euros)



Source: Own design based on the data provided by National Institute of Statistics (12)

The training of farmers and their access to European funds led to a significant increase in the production of honey, and, consequently, in the value of the exports of this food. According to the statistical data provided by INS (figure 1 and figure 2), the increase of the value of exports between 1991 and 2018 was 3,992.34%. In total, this evolution brought to Romania revenues of 40,675 thousand euros.

Table 1: Comparative presentation of the descriptive statistics of the export of natural honey during the periods 1991-2006 and 2007-2018

Indicators	1991-2006	2007-2018
Mean	8620,938	35069,42
Standard Error	1613,63	3179,672
Median	8262	38087
Standard Deviation	6454,519	11014,71
Coefficient of variation	74,87026	31,4083
Annual growth rate	20,11287	8,130628
Minimum	824	12141
Maximum	22633	48352
Sum	137935	420833
Count	16	12

Source: Own calculation based on the data provided by National Institute of Statistics (12)

Analyzing the periods 1991-2006 and 2007-2018, it appears, according to table 1, that in the first period the value of exports was, on average, 8,262 thousand euros, respectively, 38,087 thousand euros. From year to year the increases were quite significant, the statistical data registering values of exports that fluctuate annually, with big differences between them. The coefficient calculated for both

periods indicates a large variation in the value of exports during the analyzed periods. For the period 1991-2006 this coefficient is 74.87%. The annual rate was positive and the export value increases are significant. Between 1991 and 2006 the rate was 21.11, while between 2007-2018 it was 8.13. It follows that the growth rate was more pronounced in the first period studied.

Therefore, the total value of the Romanian honey exports for the period 1991-2006 amounted to 137.9 million euros. The 12 post-accession years brought total revenues of 420.8 million euros from honey export.

Table 2: Student's t-test for comparing Romanian exports of natural honey during the periods 1990-2006 and 2007-2018

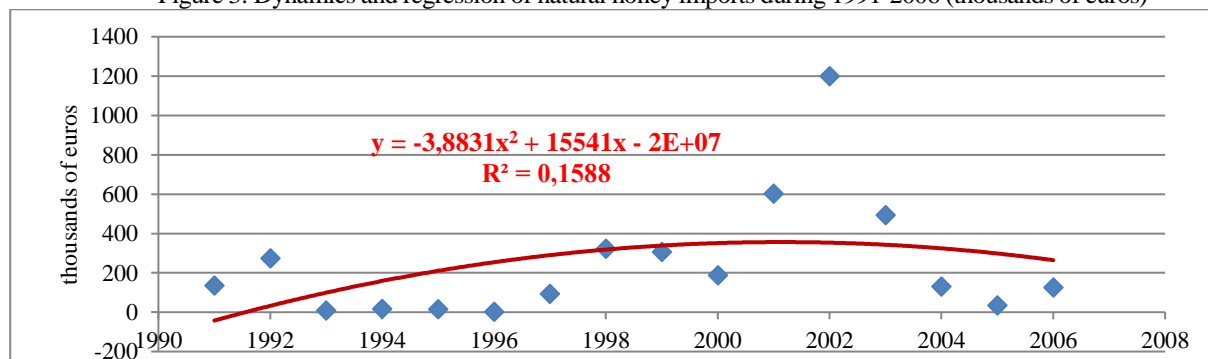
	2007-2018	1991-2006
Mean	35069,417	8620,9375
Variance	121323791	41660810
Observations	12	16
Hypothesized Mean Difference	0	
df	17	
t Stat	7,4175009	
P(T<=t) one-tail	5,029E-07	
t Critical one-tail	1,7396067	

Sursa: t-Test: Two-Sample Assuming Unequal Variances

Analyzing the data presented in the table no. 2, we can conclude that the calculated values of the statistical test t are high in relation to the theoretical values ($7.4175009 > 1.7396067$), and the probabilities are small with respect to the significance threshold ($p < 0.05$) and, therefore, we can say that there is a statistically significant difference between the two periods.

The evolution of the value of honey imports during the period 1991-2006 is represented in figure 3. The absolute difference between 1991 and 2006 was 10,000 euros. A decrease of 7.35% between these two years was calculated.

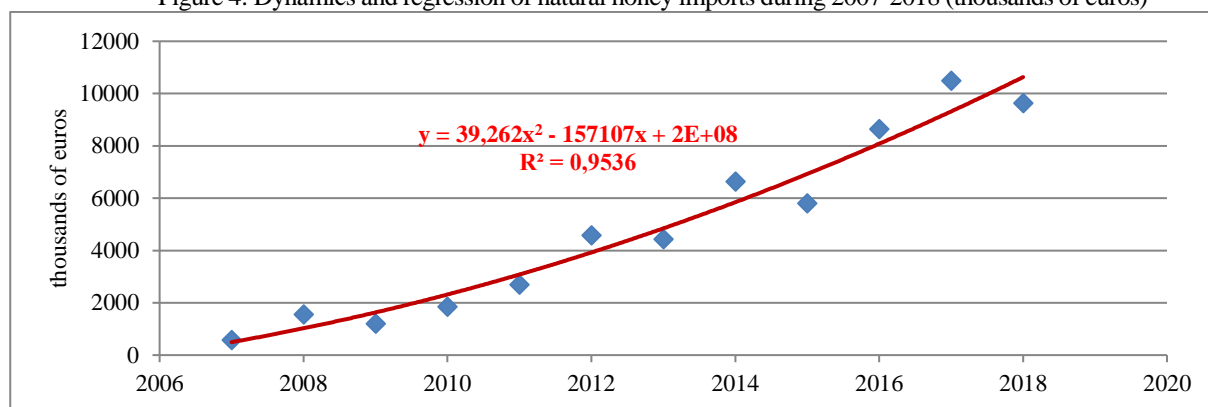
Figure 3: Dynamics and regression of natural honey imports during 1991-2006 (thousands of euros)



Source: Own design based on the data provided by National Institute of Statistics (12)

Between 2007 and 2018, honey imports saw an upward trend (Figure 4). According to the data provided by the NIS, in 2017, the value of honey imports was 580 thousand euros, increasing by 1,661.72%, to 9,058 thousand euros. The lowest value of imported honey, of 580 thousand euros, was attained in 2007, while a maximum of 10,497 thousand euros was reached in 2017.

Figure 4: Dynamics and regression of natural honey imports during 2007-2018 (thousands of euros)



Source: Own design based on the data provided by National Institute of Statistics (12)

The annual average for the period 1991-2006, according to the data processed in table 3, was 133.5 thousand euros. For the period 2007-2018 the annual average was 4,502.5 thousand euros. Therefore, the variation in the annual values of honey imports was considerable. For the first period analyzed, which included 16 years, the rate was negative, the value of imports decreasing slightly (-0.5). The increase in the value of imports was significant in the 12 post-accession years, the calculated rate being (+43,53).

Table 3: Comparative presentation of the descriptive statistics of the import of natural honey during the periods 1991-2006 and 2007-2018

Indicators	1991-2006	2007-2018
Mean	246,875	4842,833333
Standard Error	77,4388401	990,383495
Median	133,5	4502,5
Standard Deviation	309,75536	3430,789065
Coefficient of variation	125,470526	70,84260036
Annual growth rate	-0,5078592	43,53837703
Minimum	3	580
Maximum	1199	10497
Sum	3950	58114
Count	16	12

Source: Own calculation based on the data provided by National Institute of Statistics (12)

Table 3 shows that honey imports amounted to 3,950 thousand euros, during the period 1991-2006, while between 2007 and 2018 they amounted to 58,114 thousand euros. Although the domestic production exceeds the demand for honey, this food was imported. The big chains of shops in Romania prefer to stock up with the cheapest (import) merchandise to which they can add a mark-up as high as possible and then sell it at even lower prices than the local beekeepers. In 2018, Romania reported a production of 29,162 tonnes of honey (12), out of which a large part, 11,326 tonnes, were directed to export. At the same time, imports reached 3,275 tonnes of honey, according to MADR.

Table 4: Student's t-test for comparing natural honey imports averages during the periods 1990-2006 and 2007-2018

	2007-2018	1991-2006
Mean	4842,833	246,875
Variance	11770314	95948,38
Observations	12	16
Hypothesized Mean Difference	0	
df	11	
t Stat	4,626463	
P(T<=t) one-tail	0,000366	
t Critical one-tail	1,795885	

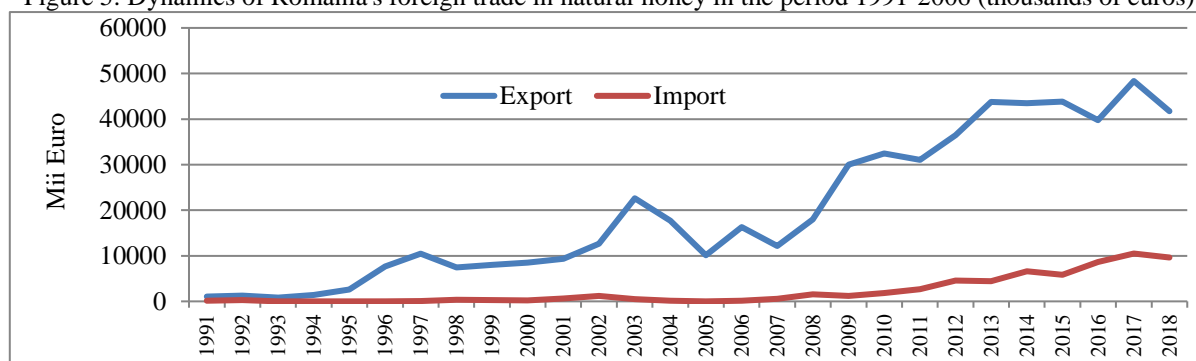
Sursa: t-Test: Two-Sample Assuming Unequal Variances

Analyzing the data presented in the table no. 4 we can conclude that the calculated values of the statistical test t are high in relation to the theoretical values ($4.626463 > 1.795885$), and the

probabilities are small with respect to the significance limit ($p = 0.000366 < 0.05$). In conclusion, we can say that there is a significant difference, statistically, between the two periods.

According to figure 5, Romania's trade balance, in terms of honey trade, is active (in surplus), because the value of exports is significantly higher than the imports for this food product. There is an increasing trend for both trading years. Between 1991-2018, Romania saw a steady growth in the foreign trade in natural honey. According to the statistical data, during the entire period analysed, the results indicated a commercial surplus (12). Romania's trade balance regarding natural honey ranged from 909 thousand euros in 1991, to 11,561 thousand euros in 2007 and 20,521 thousand euros in 2018 (12).

Figure 5: Dynamics of Romania's foreign trade in natural honey in the period 1991-2006 (thousands of euros)



Source: Own design based on the data provided by National Institute of Statistics [12].

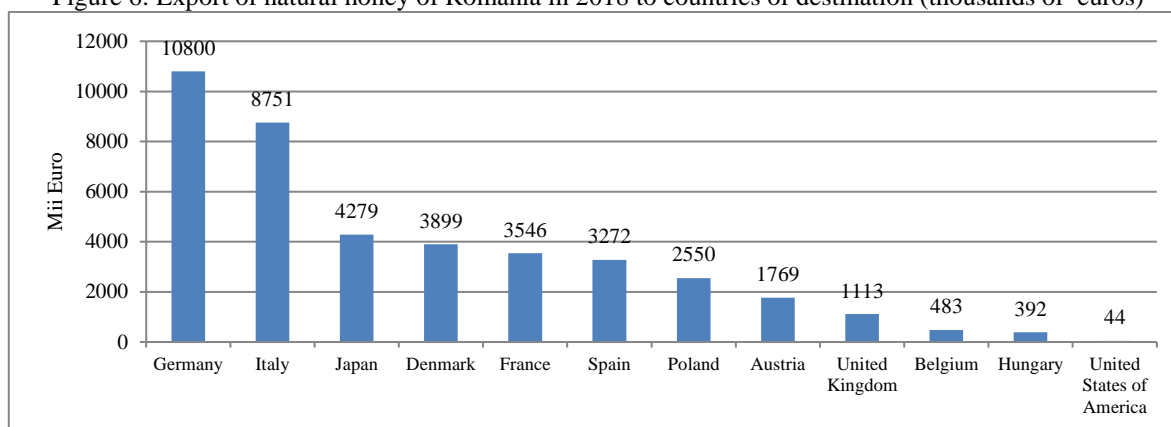
Table 5: Evolution of Romania's natural honey export to countries of destination between 2001-2018

Export	2001		2007		2018		2018-2007	2018-2001	2018/2007	2018/2001
	thousands of euros	%	thousands of euros	%	thousands of euros	%	thousands of euros	thousands of euros	%	%
Germany	6178	66,42	7818	65,66	10800	25,82	2982	4622	138,14	174,81
Italy	828	8,90	616	5,17	8751	20,92	8135	7923	1420,62	1056,88
Japan	183	1,97	129	1,08	4279	10,23	4150	4096	3317,05	2338,25
Denmark					3899	9,32	3899	3899		
France	79	0,85	20	0,17	3546	8,48	3526	3467	17730,00	4488,61
Spain	254	2,73	172	1,44	3272	7,82	3100	3018	1902,33	1288,19
Poland	0	0,00	49	0,41	2550	6,10	2501	2550	5204,08	
Austria	23	0,25	0	0,00	1769	4,23	1769	1746		7691,30
United Kingdom	502	5,40	1882	15,81	1113	2,66	-769	611	59,14	221,71
Belgium	272	2,92	378	3,17	483	1,15	105	211	127,78	177,57
Hungary	423	4,55	539	4,53	392	0,94	-147	-31	72,73	92,67
United States of America	41	0,44	0	0,00	44	0,11	44	3		107,32
Total	9301	100%	11907	100%	41833	100%	29926	32532	351,33%	449,77%

Source: Own calculation based on the data provided by International Trade Centre (ITC), <https://www.trademap.org/Index.aspx>, (11)

The main market for Romanian honey is represented by Germany. In 2018 Romania sold 10.8 billion euros' worth of honey to this country (25.82%). Table 5 shows that honey exports to Germany amounted to 6,178 thousand euros (66.42%) in 2001, and to 7,818 thousand (65.66%) in 2007. There was a 74.81% increase in exports in 2018, compared to the figures in 2001. Italy is the second country that prefers Romanian honey, buying 8,751 thousand euros' worth of honey in 2018 (20.92%). From 2001 to 2018, the value of exports to this country increased by 1,056.88%. Also, Romania sold 4,279 thousand euros' worth of honey (10.23%) to Japan in 2018.

Figure 6: Export of natural honey of Romania in 2018 to countries of destination (thousands of euros)



Source: Own calculation based on the data provided by International Trade Centre (ITC), <https://www.trademap.org/Index.aspx>, (11)

Since 2016, Romania has sold large quantities of honey to Denmark, obtaining significant monetary gains. In 2018, the exports to this country reached 3,899 thousand euros (9.32%). Romania's accession to the EU greatly facilitated the activity of foreign trade in honey. According to the data in table 5, there is a substantial increase of 17730% in the value of exports to France in 2018, compared to the year of EU accession. Spain, Poland and Austria also top the chart of the countries where Romanian honey is mainly exported (12).

The trend in the value of exports for countries such as the UK and Hungary was a downward trend. Exports to these countries declined in 2018, compared to 2007. The value of exports to the United States has changed considerably over the years. There were years when the value of honey exports exceeded 1 million euros (2002, 2003, 2004), but there was also a year, 2007, when honey was not exported at all.

As it can be seen from figure 4, honey imports increased exponentially after Romania joined the EU. Before 2007, Romania imported small quantities of honey from certain countries. The main source of imports was the Republic of Moldova (table 6).

Table 6: Romania's import of natural honey by country of origin (thousands of euros)

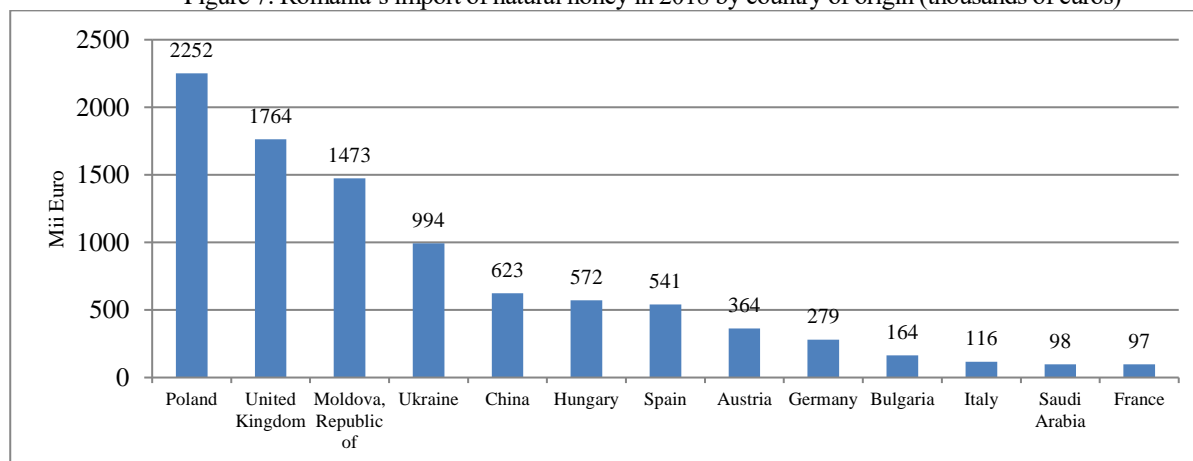
Exporters	2001		2007		2018		2018-2007	2018-2001	2018/2007	2018/2001
	thousands of euros	%	thousands of euros	%	thousands of euros	%	thousands of euros	thousands of euros	%	%
Poland	0		0		2252	23,32	2252	2252		
United Kingdom	0		0		1764	18,27	1764	1764		
Moldova, Republic of	308	51,08	17	3,01	1473	15,25	1456	1165	8664,71	478,25
Ukraine	0		0		994	10,29	994	994		
China	0		0		623	6,45	623	623		
Hungary	1	0,17	4	0,71	572	5,92	568	571	14300,00	57200,00
Spain	0		55	9,73	541	5,60	486	541	983,64	
Austria	0		12	2,12	364	3,77	352	364	3033,33	
Germany	16	2,65	0	0,00	279	2,89	279	263		1743,75
Bulgaria	0		5	0,88	164	1,70	159	164	3280,00	
Italy	0		7	1,24	116	1,20	109	116	1657,14	
Saudi Arabia	0		0		98	1,01	98	98		
France	17	2,82	0		97	1,00	97	80		570,59
Total	603	100	565	100	9656	100	9091	9053	1709,03	1601,33

Source: Own calculation based on the data provided by International Trade Centre (ITC), <https://www.trademap.org/Index.aspx>, (11)

The value of imports from this country was on a downward curve. Thus, if 308 thousand euros' worth of honey was imported in 2001, this amount was reduced to 17 thousand euros in 2007. Small quantities of honey were imported before 2007 from countries such as Austria, France and Italy. The first three countries for Romania's import of honey are Poland (2,252 thousand euros in

2018), the United Kingdom (1,764 thousand euros in 2018) and the Republic of Moldova (1,473 thousand euros in 2018) (table 6).

Figure 7: Romania's import of natural honey in 2018 by country of origin (thousands of euros)



Source: Own calculation based on the data provided by International Trade Centre (ITC), <https://www.trademap.org/Index.aspx>, (11)

From Ukraine, Romania has been importing honey since 2014. The value of imports amounted to 994 thousand euros in 2018. Our country started importing honey from China, the largest global producer, in 2008, with imports which reached 623 thousand euro last year. From Germany, the country where Romania sells the most significant quantity of honey, Romania imported honey worth 279 thousand euros in 2018. According to table 6, in 2018, Romania imported honey worth 98 thousand euros from Saudi Arabia, for the first time (11).

CONCLUSIONS

Romania's natural honey production increased significantly, from 16,766 tonnes in 2007 to 29,162 tonnes in 2018 (+ 74%) (12). Due to the low purchasing power of the population, the internal consumption of honey is 500-600 grams per year (1). For this reason, most of the production of excellent quality honey is exported to developed countries. Thus, we supply natural honey to more developed countries such as Germany, Japan, Italy, France, etc. Although Romania produces more and more honey every year, there is a significant increase in honey imports at a very low price (6 lei/kg), from countries such as Poland, Moldova, Ukraine, China, even Saudi Arabia. While the beekeeping associations and organizations claim that in 2018 the cost of obtaining a kilogram of polyphorous honey was 12 lei, the wholesale companies dealing with the collecting and exporting of Romanian honey offer farmers a price of 8-9 lei/kg.

Following the analysis of the Romanian honey market we can draw several conclusions:

1. Romanian honey is appreciated on foreign markets, but it is not rendered profitable because it is sold wholesale.
2. If we refer only to 2018, when Romania exported 11,326 tonnes of honey, the farmers' total loss amounted to about 339 million lei (-3 lei/kg) .
3. The export of honey brings foreign currency and profit only to wholesalers.
4. The Romanian beekeepers can turn to good account the honey which could not be exported (~ 50%) with extreme difficulty, through all the channels they have at hand: on the roadside, in the food markets, at food fairs, in supermarkets, by online advertising (web pages, Facebook, etc.), etc. Romanian honey is hard to sell because the asking price is high for the the Romanians' purchasing power and varies between 20 and 40 lei depending on the type of honey (polyfloral, acacia, linden, etc.).
5. So far, the profile associations have been interested only in their own profit obtained by collecting membership fees, collecting honey and selling inputs for beekeeping.

6. The retail networks take advantage of the legal conditions in Romania and offer EU and non EU honey at affordable prices (14-18 lei/kg) to Romanian consumers, obtaining considerable profit margins, while Romanian beekeepers conserve honey on stock.

7. The labeling of honey, under the current conditions, is not informative enough for Romanian consumers, on the basis of which to decide. Even if the EU has certain regulations in this regard, the authorities must find a solution to providing on each label the correct and legible information on the provenance (honey produced in China, Ukraine, etc.) and quality (honey, sugar molasses or industrial glucose).

8. Over the 12 years since Romania's accession to the European Union, Romanian farmers in the beekeeping field have failed to understand that profit can be obtained only through investments in processing / packaging and short sales channels through local brands.

Over the whole period analyzed (1991-2018), the value of honey exports is significantly higher than the value of imports, thus generating a positive balance of trade.

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