

NATURAL HONEY: A STUDY ABOUT ROMANIAN POTENTIAL TO DEVELOP ITS PRODUCTION AND EXPORTS ON INTERNATIONAL MARKETS

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Abstract

The study aims to evaluate Romanian potential to develop its natural honey production and exports on European and world markets, based on Romanian honey appreciated quality and its attractive price. The research method is based on a quantitative approach and use time data series related with Romanian honey production and trade. The conclusions underline a positive trend of the honey production in Romania, related with an increase of bee families and a development of the beekeeping sector especially in the West Region of Development.

Key words: honey, production potential, trade, Romania

INTRODUCTION

The stories of the bee and honey bee products followed the humanity during centuries. Recent studies reveal spectacular issues related to the lives of bees and beekeepers as well as honey and bee products.

While is well known that bees are social insects, it might be surprising the studies that show their democratic decisions in choosing their next nest site, based on a face-to-face consensus-seeking assembly [16].

The beekeepers are helped by the researches related with the threats to the health and wellbeing of honey bee, as those targeted to understand the morphology, epidemiology, pathogenesis and the transmission of the honey bee viruses [2], or related with honey bee nutrition [8, 9] and necessity for supplementary feeding [9].

Some studies connected these aspects and studied the feedbacks that nutrition had on honey bee state of health [4].

While many studies are focused on the negative effects of pesticides on honey [11], more studies are related with the extensive colony losses of honey bee at world level and their various causes [15]. That is why the EU issued a programme for sustainable beekeeping [5].

Not so many studies are related with the economic aspects of the honey bee commercialisation on the markets. Several studies are searching for consumer's preferences for locally produced honey [3, 13], the needs for marketing cooperation and for honey business strategy [17] or role of honey bees in generating incomes in farms and their role as an input in enhancing crops productivity. Even fewer studies are related with the international trade with honey and honey products. But these studies are related rather with the impacts of honey safety and quality standards on honey trade [1, 18].

In a recent book dedicated to honey analyse [14] the authors detailed the evolution of the honey sector in Romania, Serbia and Italy, proposing the indicator of Average Annual Growth Rate, which was used to compare the evolution of trade balance in the analysed period in these countries.

Their results pointed Romania as an important exporter of honey, having a net trade balance, with an average yearly growth rate of more than 50% in the period of ten years included in their research.

In this context, the paper aimed to analyze the evolution of the honey bee production in Romania and its international trade with honey.

MATERIALS AND METHODS

The research related with production was conducted at the regional and national level, and within EU and World context.

For this study, based on the honey production we calculated statistical indicators as: the mean, the standard deviation, the coefficient of variation, the annual growth rate, and specific trade indicators as: trade balance, export and import prices.

The data were provided of Romanian National Institute of Statistics and the main provider of trade data, International Trade Centre.

A SWOT analysis was also made to show which are the strengths, weaknesses, opportunities and threats in honey production and trade.

RESULTS AND DISCUSSIONS

Evolution of production

The production of honey bee in Romania increased from 23,062 tons in 2012 to 30,831 tons in 2021 (Figure 1).

During this decade, the average production was 26,304 tons, recording an annual growth rate of 3.28%.

While The Region South West Oltenia had the biggest honey production in 2021, and recorded also the highest average production from 2012 to 2021, the North West Region recorded the highest annual growth rate, of 5.5%, with an increase of production by 61% from 2012 to 2021 (Table 1).

Table 1. The evolution of the honey production in Romania between 2012 and 2021 by region (tons)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Romania	23,062	26,678	18,040	27,893	21,202	30,177	29,162	25,269	30,724	30,831
North West	2,910	3,117	2,291	3,568	2,821	4,031	4,249	3,263	4,345	4,710
Centre	3,354	3,958	2,533	4,269	3,117	3,829	3,493	3,408	3,877	3,839
North East	3,368	3,433	2,711	4,081	3,188	3,917	3,880	3,691	4,342	4,589
South East	2,922	3,130	2,246	3,271	2,232	5,201	4,724	4,333	5,652	5,134
South Muntenia	3,395	4,152	2,688	4,058	3,116	4,049	3,962	3,078	3,556	3,858
Bucharest - Ilfov	219	379	171	277	193	261	344	314	328	238
South West Oltenia	3,797	4,491	2,718	4,657	3,809	5,299	5,387	4,712	5,278	5,488
West	3,097	4,018	2,682	3,712	2,726	3,590	3,124	2,470	3,346	2,975

Source: INSSE data base [12].

The highest variability of production in the analysed period was recorded in the Bucharest – Ilfov Region and the West Region was the

only region with negative annual growth rate between 2012 and 2021 (Table 2).

Table 2. Indicators calculated in relation to the evolution of the honey production in Romania by region for the period 2012-2021

	Mean	St. Dev.	Coef. of variation	Annual growth rate (%)	2021/2012
Romania	26,304	4,369	0.17	3.28	+33.69
North West	3,531	781	0.22	5.50	+61.86
Centre	3,568	498	0.14	1.51	+14.46
North East	3,720	562	0.15	3.50	+36.25
South East	3,885	1,274	0.33	1.43	+75.70
South Muntenia	3,591	505	0.14	1.43	+13.64
Bucharest - Ilfov	272	68	0.25	0.93	+ 8.68
South West Oltenia	4,564	893	0.20	4.18	+ 44.54
West	3,174	493	0.16	-0.45	-3.94

Source: own calculation based on INSSE data base [12].

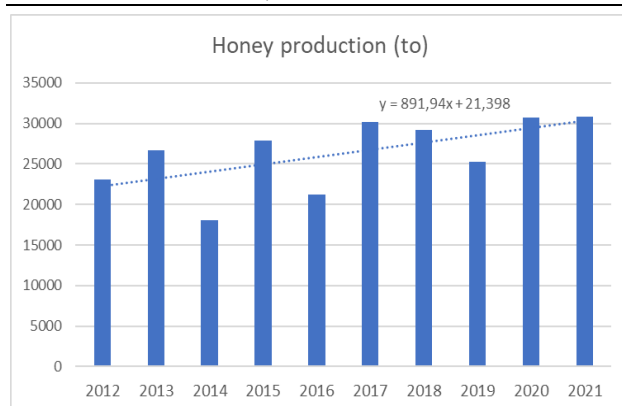


Fig. 1. Honey production in Romania
 Source: INSSE data base [12].

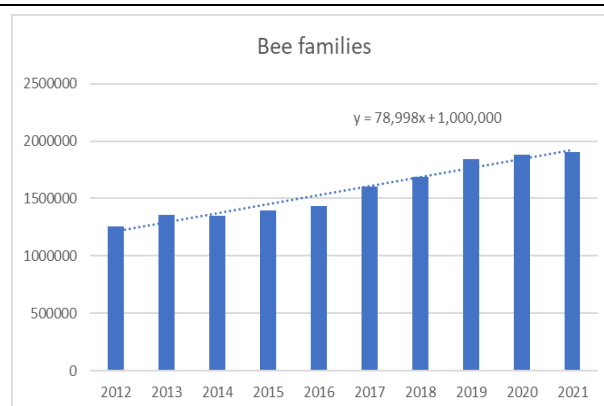


Fig. 2. Bee families in Romania
 Source: INSSE data base [12].

Evolution of bee families

Despite overall decline of the number of pollinators in the EU, due to climate change effects, pollution and biodiversity loss [5], the number of bee families in Romania increased from 1.2 million in 2012 to 1.9 million in 2021, corresponding to an annual growth rate of 4.74%.

As calculated in average for this period, at national level were recorded about 1.5 million of bee hives. In 2021 the South East Region was in top with the number of bee families, with around 0.33 million, followed by the North East Region with 0.31 million of bee families (Table 3).

Table 3. The evolution of the bee families in Romania by region between 2012 and 2021 (thousands)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Romania	1,254	1,354	1,350	1,392	1,437	1,602	1,689	1,843	1,879	1,903
North West	162	170	174	171	184	209	230	294	308	312
Centre	188	195	191	202	203	204	211	223	225	226
North East	170	195	193	198	199	215	219	238	248	252
South East	141	138	136	138	147	252	282	323	333	337
South Muntenia	185	192	194	197	215	227	228	249	265	263
Bucharest - Ilfov	18	18	13	13	14	14	16	16	15	11
South West Oltenia	218	270	275	298	294	312	324	311	290	291
West	168	172	171	172	177	165	176	186	191	206

Source: INSSE data base [12].

Table 4. Indicators calculated in relation with the evolution of the bee families in Romania by region for the period 2012-2021

	Mean (thousands)	St. Dev. (thousands)	Coef. of variation	Annual growth rate (%)	2021/2012
Romania	1,570	244	0.16	4.74	+51.76
North West	221	61	0.28	7.55	+92.54
Centre	207	13	0.07	2.04	+19.96
North East	213	26	0.12	4.43	+47.71
South East	223	90	0.41	3.97	+139.16
South Muntenia	221	29	0.13	3.97	+41.96
Bucharest - Ilfov	15	2	0.14	-5.07	-37.36
South West Oltenia	288	29	0.10	3.28	+33.68
West	178	12	0.07	2.34	+23.09

Source: own calculation based on INSSE data base [12].

The North West Region has recorded the highest annual growth rate of 7.5% for the bee family's population, while the Bucharest Ilfov

Region confirmed the loss of production conditions that generated a negative annual growth rate, of around -5%. The bee

population from the South East Region showed the highest variability between 2012 and 2021. In the Bucharest – Ilfov Region of Development, a region that had seen great changes and interactions between the urban and rural environment, with a huge development of urban areas, the beekeeping occupation will be hardly to find in the next decades.

In the Table 4 were presented the main statistical indicators, calculated in relation with the evolution of the bee hives in Romania for the period 2012-2021.

SWOT Analysis

A SWOT analysis of the honey bee sector in Romania in the EU context [6] underline, from the authors point of view, the next aspects:

Strengths:

1. Tradition doubled by passion;
2. The climate is favourable for bee production in most part of the country;
3. All the Romanian beekeepers that have above 150 hives units are part of producer's organisations;
4. Romania is situated in top 3 of EU countries as regarding the number of hives and the total quantity of produced honey, and both indicators have a positive trend;
5. The average cost per kg of honey produced is one among the smallest from EU;
6. The Romanian export possibilities are attractive even within EU, where the trade balance with honey is negative;
7. The beekeeping sector is supported by the Romanian Apiculture Program, financed by the European Union (50%) and the member states (50%) and the funds allocated are related with the number of beehives.

Weaknesses:

1. The reduced size of the beekeepers from Romania, compared with the situation from the main honey bee producers from EU and the negative trend of them in the recent years;
2. Small number of the beekeepers with significant hive families;
3. Low average yield in kg of honey per beehive and per year, related with other EU producers;
4. Low internal consumption of honey bee per capita, far below EU average;

5. Low average price of honey per kg in the site of production and very low average price of honey in bulk at wholesalers;

6. Only few producers can manage to have beekeeping as an essential source of income.

Opportunities:

1. There are many potential seasonal spots at the national level where the beekeepers can develop their production;
2. The possibility of the beekeepers to access the NAP in the areas as: technical assistance, combating of beehive invaders and diseases, transhumance rationalisation or hives restocking;
3. The increasing use of honey bee in medicine, related with the healing effects, which increase the demand for honey bee;
4. Trading of the Romanian honey bee on the international markets, at superior price level.
5. Diversification of the product range;
6. Developing of the new brands or why not, of a National Honey Brand;
7. The use of the concept and the advantages of the mountain products for the producers located in the mountain areas;
8. Enhancing online sales in the beekeepers' options on the market.

Threats:

1. Low incomes from the beekeeping activity discouraged many of the newcomers to the sector and the attraction of accessing EU funds is annihilated by the limited possibilities in developing their business;
 2. The aging of the traditional beekeepers and the lack of descendants interested in the following of beekeeping tradition;
 3. The high level of pesticides that threatens the beehives and the high frequency of the invaders and diseases within the beehives;
 4. Limited access to the distribution channels for many beekeepers;
 5. Changes in land use might affect in time the opportunities for beekeepers in developing their activities and can increase the transhumance costs;
 6. Imported quantities of honey in the EU from Ukraine and China;
- Similar remarks in SWOT analysis in honey production and trade were made by [7]; Romania was a net exporter for honey in the analysed period, even if it can be seen that in

2022 it was exported 6,864 tons of honey, 5). comparative with 9,748 tons in 2012 (Table

Table 5. Trade balance for honey in Romania (tons)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Exported quantity	11,460	12,649	11,116	10,863	10,371	12,249	10,509	10,497	13,185	11,941	12,183
Imported quantity	1,712	2,967	2,577	2,450	3,388	3,630	3,013	2,373	5,906	5,226	5,319
Trade balance	9,748	9,682	8,539	8,413	6,983	8,619	7,496	8,124	7,279	6,715	6,864

Source: ITC data base [10].

The Romanian trade balance for honey bee was in consequence positive in the last decade, and with a higher sold at the beginning of the analysed period when the imported quantities were smaller. In 2022, Romania exported honey bee worth 52,384 thousand \$ and imported honey bee worth 14,680 thousand \$. In 2021 was recorded the highest net positive balance, of 58,800 thousand \$. The export of Romanian honey bee in the non-EU countries ad more value to the trade balance, but the options in this moment are limited to a small number of countries (Table 6).

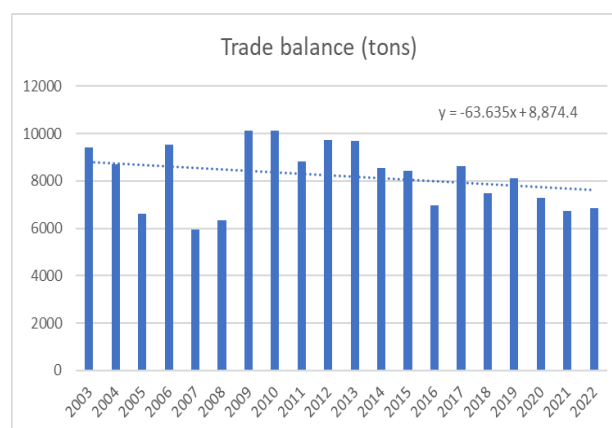


Fig. 3. Trade balance in Romania for honey (tons)
 Source: ITC data base [10].

Table 6. Trade balance for honey in Romania (US Dollar thousand)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Export value	44,593	54,572	53,919	46,020	41,492	52,138	49,288	42,359	48,995	58,880	52,384
Import value	5,144	5,546	8,302	6,183	8,992	10,560	11,388	8,706	16,616	16,027	14,680
Trade balance	39,449	49,026	45,617	39,837	32,500	41,578	37,900	33,653	32,379	42,853	37,704

Source: ITC data base [10].

In quantitative terms, the Romanian exports of honey bee were above 10,000 to in every year of the analysed period, with a record of 13,185 to exported in 2020. The imported quantities started to increase in the last years, with the highest quantities recorded in 2020, of 5,906 to. Germany is the main destination of the Romanian exports of honey, with over 4.5 thousand to exported in 2019, followed by Italy and Poland. From non-EU countries, the main destination of honey bee exports was Japan, followed by the former member of EU, United Kingdom (Figure 5).

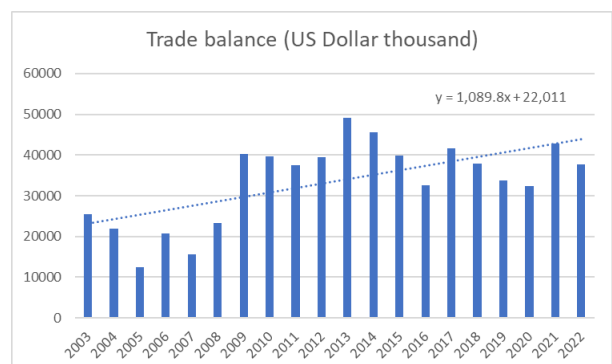


Fig. 4. Trade balance in Romania for honey (US Dollar thousand)
 Source: ITC data base [10].

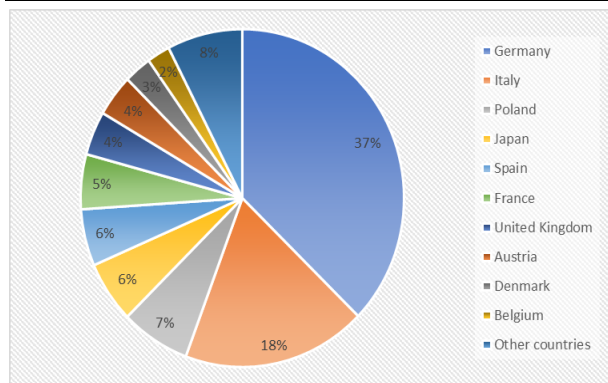


Fig. 5. Top importing markets for honey exported by Romania in 2022 (tons)

Source: ITC data base [10].

The honey bee sector in Romania can mainly be supported by attractive prices on the national and international markets.

The internal price of honey bee is not attractive both for buyers and sellers.

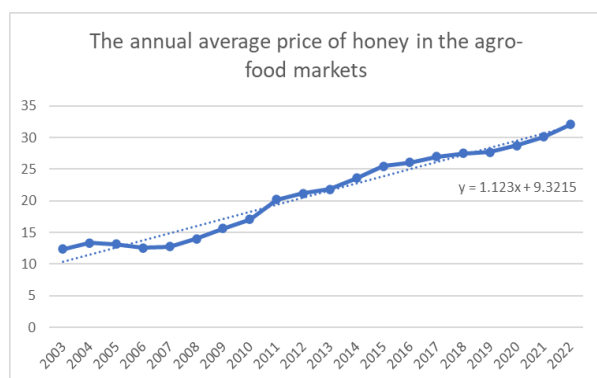


Fig. 6. The annual average price of honey in the agro-food markets in Romania (lei/kg)

Source: INSSE data base [12].

While for the first category the price is too low, for the second category the price is a restriction for most part of the consumers, which had average or rather low incomes.

The price of the honey bee in Romania was in 2022 around 5 - 6 euro/kg, but the positive trend of honey price on agro-food markets was not an advantage for the producers, which faced also higher production costs (Fig. 6).

The export prices were not in the advantage of the Romanian producers that wanted to sell their products on the EU and non-EU markets. The highest export price was recorded in 2021, of 4,931 \$/to, but the evolution of export prices is quite unpredictable from one year to another, correlated with the honey bee production variations from Romania and

abroad. The only benefit of exports was the sale of large bulk quantities.

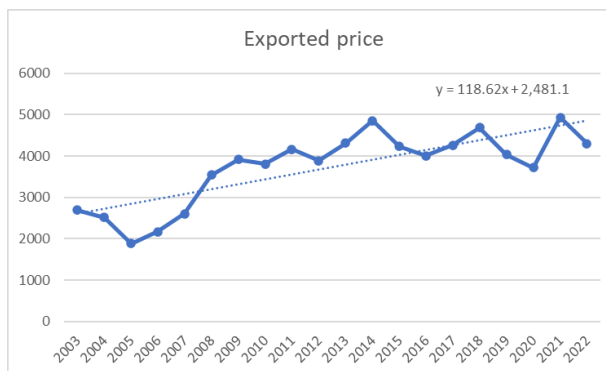


Fig. 7. Exported price for honey (\$/tons)

Source: ITC data base [10].

In terms of import prices, as it is shown in Figure 8, the smallest price was in 2013, of 1,869 \$/to and the highest in 2018, of 3,780 \$/to. In 2022, Romania imported honey with 2,760 \$/to.



Fig. 8. Imported price for honey (\$/tons)

Source: ITC data base [10].

CONCLUSIONS

Still traditional in Romania, which is an important producer of honey bee from EU, large quantities of honey bee are sell by producers directly, outside official markets.

The price of the honey bee in Romania does not ensure a decent living from the beekeeping activity alone, and the exports prices are also very low, which is also a week of the sector. Creating a national brand for honey bee might be a solution in promoting beekeeping activities, and in increasing of export prices. The sector which is strongly related with the health of the population due to honey properties should be more supported by Romanian state, and the activity of

beekeeper should get better recognition and support. Studies about honey consumption and promoting of honey consumption should be targeted at least for the young population. The large-scale use of bee products in pharmacy could also be the subject of some studies and cooperation solutions between beekeepers and the pharmaceutical sector should be found and supported through government support measures.

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