

## ECONOMIC ANALYSIS OF STATE AND DEVELOPMENT OF BEEKEEPING IN BULGARIA

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### Abstract

*The aim of this paper is to analyze the trends and development of Bulgarian beekeeping. The study is based on official statistical data of the Ministry of Agriculture and Food and fieldwork study for the period 2009-2012. To achieve the above aim, first of all, the authors trace the changes in the production of honey until 2012 and second they analyze the distribution of farms according the number of bee colonies and prophylactic methods of their feeding up. In addition, in study was revealed the reasons for distribution of the bee colonies and identified the important problems facing the sector in term of the legislation, protection of the bee colonies, the control of the importing the queen bees and market development of the bee products. The one of main results of the study showed that the number of bee colonies in the country decrease even highly expert-oriented production of honey in Bulgaria.*

*Key words:* beekeeping, Bulgaria, economic development, honey production

### INTRODUCTION

Beekeeping is organized production of honey and other bee products such as bee pollen, beeswax, propolis, bee venom. The main benefit of beekeeping, however, is not honey, as is often emphasized, and the pollination of wild and especially cultural vegetation, leading to the multiplication yields.

Accordingly, it can be said that the honey bee is in the by-product. Without pollination there would be total starvation of animals and people and life on our planet would be endangered. To the favorable climate, a wide variety of honey plants and the overlap of beekeeping in the economic life of the camp, define Bulgaria as typical beekeeping country. The goal of this study is to analyze the trends and development of beekeeping in Bulgaria. Therefore, we study the amendment in honey production, bee colonies' distribution and also outline the main problems in the sector.

### MATERIALS AND METHODS

The economic analysis of the status and development of beekeeping in Bulgaria for

the period 2009-2012 is based on a study of the factors influencing the trends and developments of apiculture in Bulgaria, the economic importance of the production of honey in the country, as well as changes in the number of animal colonies for the period. Necessary for that purpose includes official statistics of the Ministry of Agriculture and Food of Bulgaria, as well as the author's own research.

### RESULTS AND DISCUSSIONS

Development of beekeeping as livestock subsector provides both additional income and alternative employment for the population of the less developed rural areas in Bulgaria. [2, 3]

The current economic situation in the country leads to serious changes and structural reforms in beekeeping. There is a tendency of reducing the production of honey in 2012 compared to previous years of the period (Figure 1).

In establishing the amount of honey produced and the number of colonies grown into account the division of the country's economic

development, since the purpose of the study is to analyze the developments and trends of beekeeping, and in different areas, it is rather influenced by the economic situation of Bulgaria.

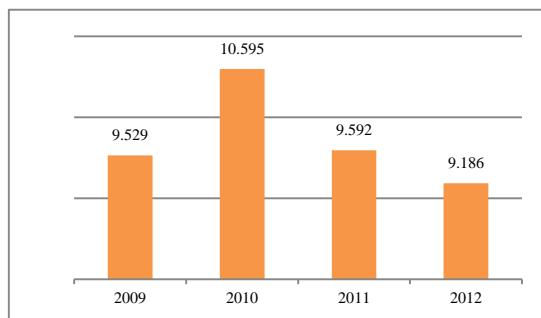


Fig. 1. Honey production (in tons) during the period 2009-2012 in Bulgaria

Source: Annual report, MAF (2011) [1]

As a result of favorable weather conditions, the average yield of honey in 2011 is 20 kg of a royal family. Harvested amount of honey in 2011 is 9,592 tons, which is 9,5% - less than extracted honey in 2010. The greatest amount of honey – 1,188 tons and most grown colonies – 50,435 are in North Eastern region of Bulgaria.

In terms of apiaries in producing honey, also found a decreasing trend, which affects the yield of honey (Fig. 2).

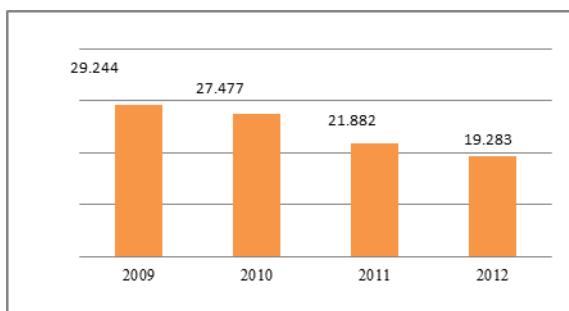


Fig. 2. Number of farms during the period 2009-2012 in Bulgaria

Source: Annual report, MAF (2011) [1]

Most bee farms are in the North Western region – 21.2%, while the smallest number in the southwest region. North region has the highest average number of colonies per farm - 35 pieces. In the North Central region are grown 18.4% of bee colonies. In 2011, this region has the highest average yield of honey compared with other regions, where 23 kg of

a royal family.

Honey in Bulgaria is an agricultural product with a strong export orientation.

In the conditions of tough competition, Bulgaria has established foreign markets mainly in the European Union. The greatest amount of honey is exported to Germany, Greece and Poland, and at least for Italy, Austria and Belgium. In 2012, exports of honey amounted to 9,314.1 tons totalizing 31.8 million USD. Accordingly, the average export price per tonne was 3,419 USD/tonne.

Since domestic production of honey meets Bulgarian market year-round, not having the country adds to the agricultural product. Unfavorable prices of bee pollen and royal jelly, forcing beekeepers to implement them in domestic markets. Bee venom is also hardly exported.

For the period 2010-2011, there was a negative trend in quantity sold honey in the industry, but at the expense of the trend of increasing the average cost per conversion of honey (Table 1).

Table 1. Realization of honey and average selling prices in Bulgaria during the period 2010-2011

Type of realization	2010	Average price	2011	Average price
	(tone)	(BGN/kg)	(tone)	(BGN/kg)
Sales of processing plants	3,637	3.93	3,958	3.99
Sales to industry	156	3.82	188	3.69

Source: Annual report, MAF (2011) [1]

Larger share of sales of processors (42,5%), where there is a tendency of increase in the selling price. At the same time, the proportion of sales of honey for cosmetic and pharmaceutical use is quite low (2%). In recent years, the amount of propolis and wax were increased. The price of propolis was increased by about 20% precisely because of its use in cosmetic and pharmaceutical industries.

The disease is widely distributed during the period 97% of beekeepers keep resisted the reduction or elimination.

The number of treatment against Varroa bee colonies in 2011 decreased by 10.8% compared with 2010. Not treated against Varroa 4,344 colonies. The costs of prevention of Varroa in 2011 with the amount

of 6,12 BGN for a royal family, which is more by 69.5% compared to 2010 (Table 2). In the spring of 2010 have burnt 94.9% of all colonies. The number of bee families fed in winter 2010-2011 year is 7.7% less than fertilizing in the winter of 2009-2010. The highest cost of winter feeding – 9.60 BGN for a royal family, and the lowest in spring-7.51 BGN.

Table 2. Prophylaxis and nourish the colonies in Bulgaria in 2010 and 2011

Activities	2010		2011	
	Bee colonies	Average cost of 1 bee colony	Bee colonies	Average cost of 1 bee colony
	(number)	(BGN)	(number)	(BGN)
Treatment against Varroa	606,949	3.61	541,568	6.12
Winter feeding	407,927	9.28	530,779	9.16
Spring feeding	570,840	8.87	620,652	7.51
Autumn feeding	496,179	8.95	577,216	9.60

Source: own calculation

To ensure normal development of bee colonies in winter when there is no pasture, they need to nurture further. These honey bees obtain the necessary wintering proteins, fats, vitamins and other substances.

In our opinion, one of the strongest factors that have a negative impact on the development of beekeeping in Bulgaria is the parasitic Varroa disease. It is the most severe disease, causing damage to both larvae and bees.

As regards the practice of transhumance in Bulgaria for the period, we found that the proportion of beekeepers still remains low compared to the total number (3.5%).

Major disadvantages are the fragmentation of farms, lack of bee pollination market and some problems with the poisoning of the bees in the conduct of plant protection measures.

Increased transport costs and requirements for the issuance of veterinary certificates also influenced this negative trend.

In 2011, a total of 478 farms practicing transhumance, which is 59% less than in 2010. The number of bee colonies where farmers have practiced mobile beekeeping is 33,685, which is 41.3% less than the previous period. Transport costs and issuance of veterinary certificates increased by 23.3% compared with 2010 (Table 3).

Table 3. Mobility apiculture in Bulgaria during the period 2010-2011

Characteristics	2010	2011	Amendment 2011/2010 (%)
Number of bee colonies	57,356	33,685	-41.3
Number of farms	1,166	478	-59,0
Costs of transport and veterinary certificates (BGN/bee colony)	13.62	16.65	22.2

Source: own calculation

At the time of the study the high mortality and the disappearance of honeybee colonies like syndrome CCD (Colony Collaps Disorder) stands out as an extremely serious problem in Bulgarian beekeeping. Main reasons for the destruction of bee colonies are gassing, starvation, disease and other causes (Fig. 3).

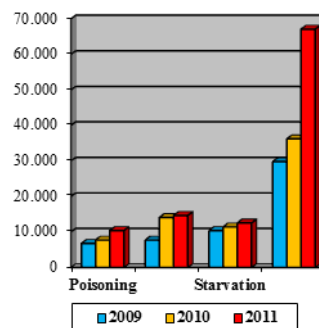


Fig. 3. Destroyed bee colonies during the period in Bulgaria

Source: own calculation

The study shows that in comparison with 2010, in 2011, destroyed by 50.3% more colonies. The number of destroyed otherwise colonies increased by 85.3%, from 36.6% poisoning. Died of starvation 9.8% more colonies. When comparing the data for the three-year period, found that in 2011 the colony losses are highest.

Crucial for the development of production and marketing of honey in Bulgaria is the storage of the finished product. Bulgarian beekeepers honey stored mainly in tins – 66.3% and in glass jars – 56.7%. Some 7.5% use plastic containers or any other packaging other than above.

In 2011, the lowest average price for storage of 1 kg honey (including transport and storage costs) in plastic - about 0.40 BGN/kg, while the storage of one kilogram of honey in tins cost beekeepers around 0.52 BGN/kg. The cost of storage in glass jars were 0.50 BGN/kg, and in packaging other than those

listed 0.42 BGN/kg.

To 2012 continued implementation of the second three-year National Beekeeping Program, applicable for the period 2011-2013. There is a budget of BGN 6,532,501 from which beekeepers have been paid BGN 5,367,783 million, i.e. 82% down in utilization of the allocated funds. [4]

According to us, Bulgarian beekeeping requires the introduction of new technologies, better control of the health status of colonies and measures to promote the realization of bee products.

We believe that the consumption of honey in Bulgaria is inherently weak, despite his health, taste and medicinal qualities, the average annual consumption per person of households do not exceed 300-400 grams. This amount does not include consumption in catering and use in the confectionery and pharmaceutical industries. For comparison, in the EU countries where the consumption of honey per year is averaged about 2 kg/person. However, the results of this economic analysis of the status and development of beekeeping in Bulgaria give us a reason to highlight important problems such as needed law for beekeeping, which along with additional legislation, cover all activities in the beekeeping sector. Poisoning of bees with pesticides also is a significant economic problem in Bulgaria.

Despite the existence of these problems, beekeeping in Bulgaria is included in the programs of the State Fund of Agriculture, measures in the National Beekeeping Program and the Program for Rural Development.

## CONCLUSIONS

The result of the study showed that the number of bee colonies in the country decrease even highly expert-oriented production of honey in Bulgaria. There several problems for this negative result:

First, the lack of bee pollination market and exploration period is under consideration of the importance of this issue by the Bulgarian institutions.

Second, the internal and external market of bee products in Bulgaria is insufficiently

developed.

Third, the growing consumption of preferential loans allows Bulgarian professional beekeepers to increase investment through purchase of modern beekeeping techniques and technologies, implementation of mobility apiculture and new systems of beehives.

## ACKNOWLEDGEMENTS

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