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# **FINANCIAL ISSUES AND FUNDING IN THE BULGARIAN BEEKEEPING SECTOR**

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**Abstract:**

The aim of the study is to establish the amount of funding in Bulgarian beekeeping and their trends. The goal is achieved through an analysis of the tendencies and the main sources of financial means. The study analyses the financial support from European and national funds (the National Beekeeping Program, the de minimis scheme, the Rural Development Program) for over BGN 18 million and from commercial banks and own sources for over BGN 3 million. Together they form financial markets for over BGN 21 million a year in Bulgarian beekeeping. The European and state financial resources intended for Bulgarian beekeeping from the country's membership in the EU are increasing in absolute terms, but are decreasing relative to the total funds. Bulgarian beekeeping has gained access to additional funding, which is not proportionate in comparison with other sectors. Additional financial support is needed per hive for the ecosystem pollination service in order to ensure biodiversity and food security in the EU. The financing of the Bulgarian beekeeping will continue to grow steadily.

**Key words:** EU funds, state funds, commercial banks, own sources.

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## Introduction

Undoubtedly, funding has a significant impact on the development of Bulgarian beekeeping. However, it also affects the state of the product and factor (land, labor) markets as well as the markets providing the means of production in beekeeping - genetic resources, feed, preparations, hives, tools, etc. It contributes to the achievement of a higher degree of cooperation, integration and diversification of the product, factor and resource markets in beekeeping as well as other sectors. It has a positive impact on the financial stability of Bulgarian beekeeping farms, as well as on the production of Bulgarian bee products and their sale on national and international markets. Financing has an important role for sustainable and accelerated development of the Bulgarian beekeeping.

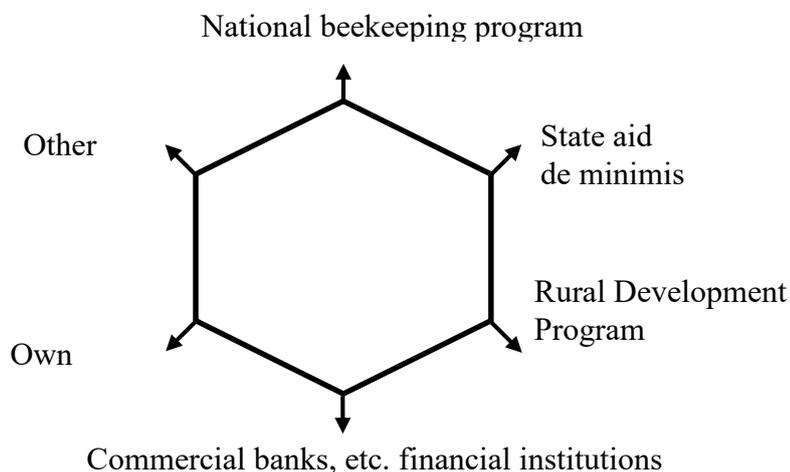
The urgency of the funding problem in the Bulgarian beekeeping sector stems from the important role it plays in the food security of the country, given the pollination activity of bees. Due to the disappearing bee populations worldwide, annual production worth between 235 and 557 billion dollars is endangered. The economic effect of bee pollination in the EU is estimated at over €14 billion per year, and in Bulgaria at over BGN 1 billion per year. The cost of bee extinction could amount to 150 billion euros worldwide, which is 10% of the market value of agricultural products intended for human consumption (Lyubenov and Stoilov, 2020). Ensuring food and social security requires financial support for the beekeeping sector.

Beekeeping belongs to the so-called green economy, which is a priority area of development for the EU and its common agricultural policy (CAP), which requires co-financing from beekeeping farms. The green economy, including beekeeping, plays an important role in the sustainable development of any economy. It generates business activities and growth in a number of industries and services, the integration of which requires funding. Ensuring innovation and the formation of high value-added bee products, as well as access to international and regional markets also requires funding. Bulgarian beekeeping is under the influence of global threats and opportunities, the adaptation to which requires solid financing of the sector to achieve supranational competitiveness.

In addition, significant funding is needed to overcome a number of global challenges such as climate change, deterioration of soil fertility and fertility in key farming, pandemics such as Covid-19, etc., in order to ensure food and national security. As a result of their negative influence, all agricultural sectors must introduce new technologies (conventional, biological, genetically modified, precise, etc.) and policies to digitize the processes from production to consumption of bee and other products which

will ensure faster adaptation and survival. Funding is also crucial in the fight against aggressors in the beehive, production, processing and sale of bee products. All this suggests that the survival and prosperity of Bulgarian beekeeping requires funding.

The main national and European funds which provide access to financial resources for the Bulgarian beekeeping farms are under the Common Agricultural Policy (CAP) of the EU. To have an access to these funds beekeeping farms must meet certain quantitative and qualitative requirements – a minimum number of beehives, registration under Ordinance 3 and Ordinance 27, etc. The EU's CAP 2014-2020 supports the sector financially through various measures of the Rural Development Program (RDP). The National Beekeeping Program (NBP) targets the sector for three-year periods. Beekeeping farms may also benefit from State aid under the de minimis scheme on the basis of Regulation (EU) № 1408/2013, as well as independent lending by banks – Figure 1.



*Figure 1. Sources of financial resources in the Bulgarian beekeeping*

These problems are addressed through a research on Bulgaria's beekeeping sector in general (object) and its sources of financing in particular (subject.) The aim of the study is to establish the amount of funding in Bulgarian beekeeping and the related trends. This goal is to be achieved through an analysis of the main sources of financial resources and the financing trends in the sector.

## **RESEARCH WORKS AND METHODS**

Although the number of research works in this field is not very large, its importance for the intensive and sustainable beekeeping development in Bulgaria is great. This is why we believe that further research in the field will lead to improvement of the development of the sector. Research methods include a complex combination of induction, deduction, grouping, comparison, analysis, and synthesis as well as mathematical and graphical representations.

## **RESULTS AND DISCUSSION**

The aim of the study will be achieved through an analysis of the main sources of funding and funding trends in the Bulgarian beekeeping sector. The discussion and results are structured in six parts – the National Beekeeping Program, de minimis state aid, the Rural Development Program, financial institutions, own sources of funding, as well as funding trends in the sector in accordance with the main contributing funding factors for development in the sector.

### **National beekeeping program**

The National Beekeeping Program (NBP) is one of the two thematic programs, together with the National Support Program in the Wine Sector, which are implemented in Bulgaria under the EU CAP. The NBP 2020-2022 has provided a total support amounting to 19.2 million BGN for the sector (MAFF, 2020). The specific financial framework of the NBP for the each of the different three-year periods is shown in table 1. It can be established that the financing of the NBP sector increases by about 1 million BGN every three years. State Fund "Agriculture" accepts and approves the applications under the NBP for the three-year periods, as 1/2 of the financial means represents national funding. Despite the lack of financial resources in the Bulgarian beekeeping from the implementation of the NAP from 2008-2019, the sector absorbs 74% of the provided financial resources, i.e. BGN 40.4 million out of BGN 54.6 million. Under the NAP in the period 2008-2019 the sector absorbed BGN 10.1 million every three years or BGN 3.37 million per year.

The largest part of the budget of the NBP 2020 - 2022 will be allocated for the purchase of medications against varroaosis (BGN 1.2 million) and for the purchase of beehives – over 1.3 million BGN. 660 thousand BGN are allocated both for technical equipment for primary processing of honey and mobile beekeeping. Also, more than BGN 830,000 will be given for maintenance or increase of bee families. Up to BGN 440,000 are eligible for the promotion of Bulgarian bee products by organizing specialized events and market fairs. Between BGN 110,000 and 165,000 are

allocated for monitoring of pesticide residues in areas with intensive agriculture, research in the field of nozematose and exchange of knowledge and good technological practices. Beekeeping farms will also be able to apply for support for the purchase of queen bees, equipment for mobile beekeeping and analysis of the honey produce. The NBP finances a wide range of activities in the sector aimed at sustainable development.

*Table 1*

***Financial resources provided under the three-year NBPs***

Period, year	Total, million BGN	Average per year, million BGN
2008-2010	7.43	2.48
2011-2013	19.59	6.53
2014-2016	13.30	4.43
2017-2019	14.28	4.76
2020-2022	19.14	6.38
$\Sigma$	73,74	4.92

**State aid de minimis**

Bulgarian beekeeping farms can also use financial support under the de minimis scheme to support them in dealing with unstable climatic conditions and to compensate part of the costs for raising bee colonies. SF "Agriculture" determines the financial framework and conditions for the aid payment under the scheme on the basis of Regulation (EU) 1408/2013 and the Agricultural Producers Support Act. The financial resources provided to the sector between 2014 and 2020 are presented at Table 2. Registered beekeeping farms under Ordinances 3 and 27, which do not have obligations due to the State Fund "Agriculture", are supported up to the first 200 beehives. A certain minimum of beehives, autumn preventive inspection and successful marketing of the production are also required.

The total de minimis aid per beekeeping farm may not exceed 15,000 EUR (29,337.45 BGN) until 2017, and then up to 25,000 EUR (48,895.75 BGN) for a period of three consecutive budget years (2017-2019). The annual aid to a beekeeping farm depends on the financial framework and the number of approved farms, and for 2016 an additional restriction was introduced for the aid per beehive which was supposed not to exceed 11 BGN. From Table 2 it can be concluded that the financial aid received by the Bulgarian beekeepers under de minimis is irregular and variable. In certain years 11 BGN/ beehive were received, while there were also periods when the funding was close to zero, for example in the period before 2014. As for 2020 the

Ministry of Agriculture, Food and Forestry (MAF) limits the aid to BGN 7/ hive.

Table 2

*State aid de minimis for beekeeping*

Year	Amount, million BGN	Farms, number	Support beehive, BGN/ pc.
2014	1.37	4 170	3.45
2015	3.46	4 967	7.8
2016	4.2	3 361	11
2017	2.4	4 341	4.77
2018	3.5	4 304	5.99
2019	0.317	30	83,75
2019	4.5	4 408	7.48
2020	5	-	7
$\Sigma$	24.75		

The MAFF implemented two de minimis schemes in 2019. The first of them, according to Regulation (EU) 1408/2013 for agricultural farms in the beekeeping sector, was intended to compensate the costs incurred as a result of the death of bee colonies after plant protection measures in 2019. It provided support for the death of the bee family from 61 to 100% - 118 BGN, and in case of plague of the bee family from 30 to 60%, inclusive - 50 BGN. Despite the significantly higher amount of support for a bee family from 50 to 118 BGN, it covered only 30 bee farms, with a total of 3 785 beehives. The measure did not have a set requirement for the number of beehives, which traditionally has been for a minimum of 20 pcs. Since 2016 up to a maximum of 200 pcs. for 2015, 2016, 2017 in particular. On average, over the period 2014-2020, the aid has been BGN 3.54 million per year.

**Rural Development Program**

The EU CAP 2014-2020 provides a financial framework for Bulgaria amounting to € 7.7 billion. € 5.35 billion of the above mentioned are mainly for direct payments, while for the RDP nearly € 2.9 billion are aimed. So far, Bulgaria has absorbed about 85-90% of the allocated financial resources under the RDP (Lyubenov, Lyubenova, 2017). Together with the national financing, over BGN 1.2 billion are provided annually under the RDP, and over BGN 1.6 billion for direct payments, which means over BGN 2.8 billion per year for Bulgarian agriculture. Registered beekeeping farms can use financial resources from the RDP 2014-2020, under various measures. The

main sources of funding for the sector are the following measures: N4 (Investments in fixed assets; N6. Development of the economy and economic activity”; N9. Establishment of producer groups and organizations: N11. Organic farming”; N16. Cooperation.

Measures 9 and 16 have an important role for the integration processes in the sector related to the implementation of more complex and large projects, including the sale of bee products. They provide access to larger funds under measure 4, which has the largest relative share of over 1/4 of all measures under the RDP 2014-2020 (Lyubenov, Lyubenova, 2017). Under measure 9 there are only five recognized Organizations and Producer Groups in the Bulgarian beekeeping, and under measure 16 there are still no results (Lyubenov, 2018). Measure 10 Agri-environment and climate may have significant future potential as a source of funding for the introduction of subsidies for pollination in the beekeeping sector. Currently, measure 11 is a serious source of financial support for Bulgarian beekeeping, because over 1/3 of it is organic.

The number of biological beehives in 2018 was 33.7% of 783,348 (MAFF, 2019), i.e. 263 988 pcs. Organic farms received subsidies under measure 11.2 for maintaining organic production of 25 euros/ beehive, and those in transition to organic production received subsidies under measure 11.1 from 35 euros/ beehive, but for only one year. Prior to 2017, the period under measure 11.1 was with a duration of 5 years, which reduced the financial assistance under it. The financial aid under measure 11.2 for 2018 was 13.2 million BGN, excluding that for the farms in transition under 11.1. At the beginning of the period in 2014, the number of biological bee families was 106,676, and the support without the funds under measure 11.1 was over 5.3 million BGN/ year which increased in proportion with the farms in transition until 2017. For the seven-year period, the support under measure 11 has exceeded 65 million BGN (Table 3).

Table 3

***Financial resources under the RDP 2014-2020***

Measures	Total, million BGN
4.1 Investment in agricultural farms	8.79
6 Investment in economic activity	-
9 Producer groups and organizations	1.06
11 Organic farming	65
16 Cooperation	-
$\Sigma$	74.85

Annually under the RDP 2014-2020 for the Bulgarian agricultural sector over BGN 1.2 billion have been provided, of which the beekeeping sector receives an average of over 10.7 million BGN (74.85 / 7) - Table. 3. The relative share of the Bulgarian beekeeping in the annual financial support under the RDP 2014-2020 is very small - 0.9%. The financial resources under the RDP 2014-2020 targeted at the Bulgarian beekeeping are mainly under measure 11, and the other measures are more difficult to access - Table. 3. They play an important role in its sustainable development and are insufficient having in mind the low liquidity and profitability of the sector and the global role and importance of pollination for biodiversity and food security. Their provision also requires the introduction of financial support for a beehive for the pollination services throughout the EU.

Although the RDP 2014-2020 defines beekeeping as one of the priority sectors, it does not offer enough good opportunities for the relatively small Bulgarian beekeeping farms in terms of access to measures - 4, etc., which provide more solid financial resources for complex and sustainable development of farms. The largest financial support is under measure 11, due to the significant number of biological bee families. The low degree of concentration in the Bulgarian beekeeping, due to the small size of the beekeeping farms, hinders the access to measures providing more solid financial resources from the RDP 2014-2020. This requires both aggregation of beekeeping farms as well as administrative measures aimed at improving the access to funding.

As a result, the difficult access to financial resources under measure 4, etc., limits the investments of beekeeping farms in logistics, processing and trade. This indirectly hinders the formation of bee products with high added value and leads to lower/weaker competitiveness and lower profitability of beekeeping farms. The creation of groups and organizations producing bee products allows better marketing opportunities, but the financial resources under this measure are also not enough – Table. 3. So far, there are five recognized groups and producer organizations in Bulgarian beekeeping (Lyubenov, 2018). However, a significantly larger number is needed to improve the marketing of bee products. Measure 16 Cooperation improves market access through innovation, but it is difficult to access and there is no financial support.

In 2020, the beekeeping farms have had the opportunity for support under sub-measure 21.1 "Extraordinary temporary support for farmers COVID 1" (Ordinance № 2 of 5 August 2020). It had a budget of BGN 93.5 million and covered the sectors "Fruit and vegetables", "Oil-bearing rose", "Vineyards", "Ornamental plants", "Animal husbandry" (cattle, buffaloes, sheep and goats) and "Beekeeping". Bee farms that applied for it and were

approved for the de minimis state aid in 2019, as well as beneficiaries with a valid contract or approved application under the RDP 2014-2020 measures were eligible for support. The financial aid under sub-measure COVID 1 is paid in the form a lump sum of about BGN 5 per beehive or a total of about BGN 2.5 million for the sector.

### **Commercial banks and other financial institutions**

Leasing, factoring and forfaiting, as non-traditional forms of financing in agriculture have a very small relative share of the Bulgarian financial agricultural markets. The financial instability, the risky nature of the production, the poorly functioning secondary financial markets of securities determines the important role of bank loans for our farmers. Therefore, the loan is one of the main sources of funding for agricultural farms (Lyubenov, Lyubenova 2017), including those in the beekeeping sector. Bulgarian beekeeping needs investments, not only by the European Union and the state but also additional funding. Unfortunately, smaller beekeepers are attractive enough as clients for the commercial banks.

The agricultural sector has had a steady growth in bank lending over the last decade and reached about 6% of total bank financing in 2016. From 2011 to the end of 2016, the total volume of approved loans in the field of agriculture, forestry and hunting sector increased from 1.2 billion BGN to 1.8 billion BGN. The sector is the fifth most important business for lending by banks after trade, manufacturing, construction and real estate. In 2016 leasing financing reached a 10% growth for companies in the agricultural sector which amounts to levels between BGN 150 and 160 million. (Lyubenov, Lyubenova, 2017). The National Guarantee Fund provides guarantees to agricultural holdings, thus facilitating access to bank loans.

Apart from the above mentioned national and European funds, both registered and unregistered beekeeping farms can use additional financial resources through bank loans, financial leasing, etc. from commercial banks. The commercial banks' sector is in collaboration with the State Fund for Agriculture and Beekeeping. The State Fund for Agriculture, as a paying agency, determines, approves and transfers funds for beekeeping farms to certain commercial banks in which they have opened bank accounts. The commercial banks operates with the financial resources under NBP, RDP, de minimis, etc., which are over BGN 17.6 million per year (Tables 1, 2 and 3).

Today, the agricultural sector annually uses over 2 billion BGN from commercial banks. By analogy with the relative share of beekeeping (about 1%) in the annual financial support of the agricultural sector, it can be assumed that it utilises over BGN 2 million in loans per year from commercial banks. Through commercial banks, Bulgarian beekeeping receives European

and national funding of about 18 million BGN per year. Outside the scope of this financing, banks also provide loans to beekeeping farms, which are not less than 10% of these funds, i.e. over 1.8 million BGN per year. Beekeeping farms use loans not only from commercial banks but also from other companies - mutual credit cooperatives, etc., which expand the credit market to BGN 2.5 million per year.

### **Own sources of funding**

Bulgarian beekeeping has received funds under measures 4.1 and 9 of the RDP 2014 - 2020 for 9.85 million BGN (Table 3) or an average of 1.4 million BGN per year. The rules of the RDP require beekeeping farms to provide co-financing for over 1 million BGN per year. Satisfaction of the requirements of the NPP, etc. programs also require co-financing by beekeeping farms. The bee farms absorb 3.37 million BGN on average per year under the NPP (Table 1), which requires co-financing for over 1.6 million BGN per year. Measure 11 of the RDP 2014 - 2020 requires investments in biological technologies, bio-certification, etc. Beekeeping farms must provide over 3 million BGN per year from their own sources or from loans or other financial instruments to receive state financial support.

It has already been established that commercial banks, mutual credit cooperatives, etc., provide the beekeeping sector with over BGN 2.5 million in loans per year. Therefore, own sources provide over BGN 0.5 million per year. The own sources of financial resources for beekeeping farms could come from retained earnings, depreciation, sale of assets and others. Buildings, equipment and depreciation are not a reliable and permanent source of own funds for beekeeping. The main source of income for beekeeping farms is the production. Honey is the main product of beekeeping, and other bee products make up about 10% (Lyubenov, 2020) of its revenues.

The national honey markets have a turnover of about BGN 100 million per year (over BGN 54 million from organizational and over BGN 44 million from consumer markets). The turnover of other bee products (wax, pollen, propolis, royal jelly, queen bees, pollination, etc.) is about 10 million BGN per year (Lyubenov, 2020), i.e. a total of 110 million BGN in annual revenues. Profit tax (on turnover) should be 4.4 million BGN per year (110.0,4.0,1), as 60% are legally recognized expenses, at 10% tax rate. In reality, it is smaller because the statistics does not cover trade in bee products outside the category of honey, as well as part of the trade in honey. Due to a steady decline in honey prices and a steady rise in factor prices and means of production, the margin between costs and revenues has been steadily declining over the last decade.

Revenues in the sector are about 4-5% above expenditures, which means that at a 4% the gross profit rate (110-110.0.96) it will reach approximately BGN 4.4 million per year, and at 5% rate, it will be 5.5 million BGN per year (110-110.0.95). The net profit in the first case will be zero, and in the second (5.5 - 4.4) it will be 1.1 million BGN per year, but the retained earnings will be below 1 million BGN per year. The profit varies considerably due to the dependence on climatic conditions, market prices, diseases and more. There are years in which the harvest is scarce in terms of both quantity and quality, respectively the size of retained earnings is smaller. Therefore, the net profit cannot provide the necessary amounts of financial resources for intensive and competitive development of beekeeping, which is why the sector needs government and other means of financing such as subsidies, bank loans, other financial instruments.

### **Beekeeping financing – trends**

During the period between 2007 and 2009, for the development of Bulgarian agriculture, including beekeeping, the EU and the national budget have allocated 720 million BGN, i.e. 240 million BGN per year, of which 3 million BGN/ year were for beekeeping, or its relative share was 1.25% (3/240). During the period between 2014 and 2020, the allocated average annual financial resources for the Bulgarian beekeeping exceed 18 million BGN/ year, i.e. they increased in absolute terms more than 6 times, but decrease relatively in the total financing by 2.8 billion BGN to 0.64% (0.018/2.8), although the difference compared to the first programming period 2007-2013 benefits the second period 2014 - 2020. This allows us to state that the Bulgarian beekeeping has received additional access to financial resources, which are not proportional to the funding of other sectors.

Bulgarian beekeeping absorbs about  $\frac{3}{4}$  of the planned financial resources under the NBP from 2008 - 2019, losing financial support of about 2 million BGN/ year. The financial aid under de minimis is irregular, variable and relatively low - for the period 2014 – 2019 it averaged under BGN 7 per beehive and covered about 1/3 of the bee families. Beekeeping farms have had difficult access to financial support under the RDP 2014-2020, as well as to loans from commercial banks. Innovations and investments not only in production, but also in logistics, processing and trade are difficult due to lack of funds, respectively the opportunities for the formation of bee products with high added value, as well as the competitiveness and profitability of beekeeping farms.

The net income of Bulgarian beekeeping farms is very low and unsustainable due to dependence on a number of internal factors - inefficient production, low level of diversification, poor risk management and external

factors, such as climate change, unsustainable agricultural markets and others. Therefore, financial support has a decisive role in shaping the economic results of the predominantly small Bulgarian beekeeping farms. The survival and stabilization of the sector requires the expansion and increase of financial support. Taking into consideration the eco-system pollination service provided by the sector, by analogy with the single area payment scheme for farms with field and other crops, financial support of a bee family is also needed.

In the previous EU CAP programming period, "green payments" were introduced for the first time to support nature conservation efforts. This approach will be extended in the next programming period and each EU Member State will have to set aside a percentage of European agricultural funds for environmental support schemes for both direct payments to farmers and rural development programs. The EU CAP is shifting from supporting farmers' incomes to financing the public goods that farmers create. There is a lasting trend to increase agricultural funding for overcoming biological threats such as COVID (Zahariev etc., 2020; Zahariev etc., 2021) etc., as well as for ecological schemes in beekeeping. Funding for conventional and organic beekeeping will grow steadily.

## **Conclusions**

As a result of the study on the financing of Bulgarian beekeeping, the following conclusions can be made:

- the various sources of financial resources in the Bulgarian beekeeping form financial markets, which provide opportunities for choosing the cheapest own and external sources, as well as opportunities for achieving an optimal ratio between them. Own sources are insufficient, which is why beekeeping needs government funding, subsidies and loans.
- the financial markets from European and national funds form solid financial markets, which are the engine for the development of the non-governmental financial markets - own markets of the beekeeping sector as well as external ones, e.g. bank loans, etc. They stimulate the sustainable development and competitiveness of Bulgarian beekeeping.
- Bulgarian beekeeping receives annual financial support of over BGN 21 million. Of these, the funds under the NPP amount to BGN 3.37 million, under the de minimis - BGN 3.54 million, under the RDP - over 10.7 million BGN, from commercial banks and other financial institutions over 2.5 million BGN. Additionally, more than BGN 0.5 million come from own sources.

- in 2020 the national beekeeping receives extraordinary support under sub-measure 21.1 "Extraordinary temporary support for farmers COVID 1" of the RDP 2014-2020 for about 2.5 million BGN. In the future the sector will need additional funding to overcome crises of various kinds.

- today, Bulgarian agriculture receives financial resources from European and state funds of over 2.8 billion BGN/ year. The funding aimed at beekeeping is over 18 million BGN/ year, without private co-financing from the beekeeping sector, which is stimulated respectively, and it has been growing steadily to 3 million BGN per year.

- the annual European and national financial resources for the Bulgarian beekeeping at the beginning of the implementation of the EU CAP 2007-2009, started from 3 million BGN and exceed 18 million BGN at the end of 2020, i.e. they increases in absolute terms by more than 6 times, but decreases relatively almost 2 times from 1.25% to 0.64%.

- Bulgarian beekeeping has gained access to additional financial resources, but not proportional funding to other sectors. Additional financial support is needed per beehive for pollination in order to ensure biodiversity and food security.

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