

Ecological-Economic Aspects of Supply of Qualitative Honey from Ukraine to the Global Markets

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ABSTRACT

The importance of the beekeeping industry for ensuring sustainable development of rural areas of Ukraine, employment of rural population, revenues to state and local budgets, conservation of ecosystems are assessed. The role of institutional support in regulating norms at the state and local levels of production and trade in honey is shown. It has been proved that the high level of shadow production of honey in Ukraine makes it impossible to identify honey producers, to determine their quantity, to identify sources (places) of origin, to control the production technology. There was a discrepancy between the volume of production and export of honey in the country; and the growth of imports of honey into Ukraine is a negative consequence of the development of market openness and integration into European and world structures. The natural and anthropogenic factors of beekeeping development are estimated; the influence of uncontrolled use of herbicides and antibiotics on the quality of honey is evident. The necessity of legalization of honey producers, association of beekeepers and traders is grounded in order to ensure honey safety and increase the selling price on world markets, gradual introduction of HACCP quality control system.

Keywords: ecological and economic aspects, world markets, honey, beekeeping, quality, safety, standards, harmonization.

Journal of Economic Literature (JEL) Classification Number: O13, Q11, Q17

Mathematics Subject Classification Number: 62P10

1. INTRODUCTION

The globalization of agro-food markets exacerbates competition, encouraging major players to adapt to the environment and keep competitive positions on the domestic and foreign markets. Countries and their business entities will benefit if they are able to offer a high-quality, competitive product to the world market. Special attention should be paid to export-oriented industries. An important potential

item of the export potential of the Ukrainian agrarian sector is the production of beekeeping industry, as the country is one of the world's leading producers of honey in terms of gross production and consumption of this product.

The role of the beekeeping industry is multifunctional, because it: is capable of shaping food security to a certain extent; to promote the effective development of related branches of agriculture and preservation of national agroecosystems; support the development of rural areas through self-employment of the rural population and the system of vertical and horizontal coordination; ensure receipt of state and local budgets through the development of agribusiness, payment of relevant taxes and legalization of market operations of business entities; has a powerful export-generating potential.

In this connection, the study of ecological and economic aspects of the successful integration of the market of beekeeping products, in particular high-quality honey, into the world market and the EU market becomes especially relevant. For agrarian science, the development of methodological principles and the development of effective mechanisms aimed at the implementation of the necessary conditions for ensuring production and quality honey supply to world markets is important.

Analysis of the recent research and publications. The question of production and supply of high-quality honey to world markets is only occasional and very diverse in researches of scientists. The bulk of the works are devoted to the biological and veterinary problems of the beekeeping industry; only a small fraction of scientists are investigating the economic efficiency of beekeeping production due to the lack of official statistics; and the ecological and economic aspects of the supply of quality honey to the world markets remain beyond the attention of researchers. First of all, the effective functioning of beekeeping markets requires an appropriate set of institutions and an adequate legislative framework.

The notion of "institutional environment" in the 90's of the twentieth century was first used by [Davis L., North D., 1971] According to the authors, the institutional environment is a set of fundamental political, social, legal and economic rules that define the framework of human behavior and form the basis for production, exchange and distribution.

[O. Williamson, 1996], agreeing with the definition of D. North and L. Davis, describes the institutional environment as the rules of the game in which economic activity, similar opinion is expressed by [P. Klein 1998], believing that the institutional environment forms the framework in which it operates man [3]. According to [Shpykuliak O. H., 2016] the basis of all market processes is the institutional mechanism, which is based on the evolution of the development of economic existence, economic institutions of the market, which form the basis of the motivation of the behavior of market agents.

Unsolved issues as part of the problem. The ecological and economic aspects faced by producers and suppliers of honey to the domestic and world markets have shown a significant role in ensuring the high quality and competitiveness of Ukrainian honey. The imperfection of the existing institutional base, as well as its non-compliance with the requirements of the major world markets regarding the quality of products, does not contribute to the orientation and aspiration of manufacturers to supply quality products. Lack of strict control over the use of plant protection products in agriculture, inconsistency of market agents in terms of their use; increased activity of beekeepers in the use of antibiotics as stimulants of bees' productivity; the lack of clear regulations on compliance with the technological conditions for the production of quality honey and other aspects led to the need to study the ecological and economic aspects of supplying high quality honey from Ukraine to world markets.

The aim of the article The aim of the study is to assess the prospects for the integration of the domestic honey market into the world; Identification of the main economic-ecological problems of

production and supply of high-quality honey to the markets of other countries of the world; the substantiation of measures to ensure the production of quality honey as one of the prerequisites for the successful delivery of honey from Ukraine to world markets.

2. MATERIALS AND METHODS

The basic legislative requirements for the quality and safety of bee honey, valid in the World Trade Organization (WTO) and the European Union, are set out in [EU Regulations, 2001] 178/2002, 396/2005, 853/2004; [Codex Alimentarius] 12-1981 and Council Directives 2001/110 / EC and 96/23 / EC, and in Ukraine - DSTU 4497: 2005. Therefore, Ukrainian honey producers should be guided by the world's accepted quality standards in order to take a firm stand on world markets. The subject of the study is a set of theoretical and methodological foundations and ecological and economic aspects of the functioning of the domestic honey market and the formation of its qualitative characteristics in the conditions of harmonization of the legal and regulatory framework of Ukraine in accordance with the requirements of the EU.

The methodological basis of the study is the position of economic theory, theories of international trade and sustainable development. In the article, based on a combination of theoretical and empirical methods, the ecological and economic aspects of production and supply of quality honey from Ukraine to the domestic and world markets are investigated. The method of generalization revealed important economic factors (low selling prices, producers' fragmentation, lack of cooperation in sales of products) and environmental problems of high quality honey production (ecology, genetically modified plants, uncontrolled use of pesticides and antibiotics, lack of certification of honey producers, etc.). Using the system analysis and comparison method, the production, export and import of honey in Ukraine are estimated; on the basis of statistical analysis the prospects of honey production are substantiated.

On the basis of the analysis of the current state of production and international trade in honey of Ukraine, the authors emphasize the need to combine the efforts of controlling authorities, socially responsible business and producers and traders of honey in relation to: improving the regulatory and legislative framework in the field of beekeeping; certification of honey production technologies; harmonization of standards for beekeeping products with European legislation. It is the system approach that will ensure the production of high-quality honey in Ukraine, its competitiveness in the world market, increase in the price of its sale and the profitability of commodity producers.

3. RESULTS

On the territory of Ukraine, beekeeping develops for several millennia in a row and has its own peculiarities of production of this indispensable product - high-quality honey. This is due to the favourable natural and climatic conditions, the abundance of honey in the forest, meadows and steppes, and the hard work and skill of Ukrainian hosts. Today, the Ukrainian honey market is one of the most promising and dynamic not only among all agrarian sectors of the state, but also on a global scale. According to experts, Ukrainian honey producers receive almost 100% of their profits. At the same time, problems remain for the preservation of the achieved tendencies:

- low export price for beekeeping products and a lack of a civilized market for their sales in Ukraine;
- deterioration of the ecological situation, the cultivation of genetically modified crops, the use of which leads to unpredictable consequences;
- wide and uncontrolled use of pesticides and other chemicals in agronomy and a number of negative factors that hinder the development of the industry.

[Experts, 2017] note, that there are more than 400 thousand beekeepers producing honey in our country, which provide 97-98% of this product. A large number of small private producers who do not provide statistics leads to the shadowing of this market [7]. Therefore, there is a big problem in the market in counting the number of producers, the amount of honey produced and its source. According to the State Statistics Service of Ukraine, production of honey in 2017 compared to 1990 increased by 15,373 tons or 30.2%. During 1990-2000, honey production did not change much. However, in 2010, compared with 2000, there was a significant increase in this indicator, namely by 18434 tons or 35.15%. In 2013, there was a slight increase in honey production in relation to 2010. But in 2015, compared with 2010, honey production declined again, with a reduction rate of 10.24% (Fig. 1).

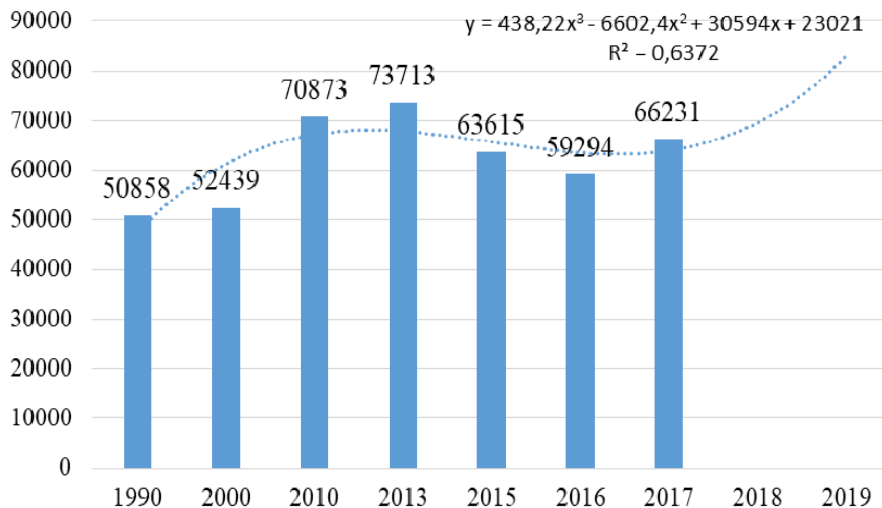


Figure 1. - Dynamics of production of honey in farms of all categories in Ukraine during 1990-2017, tons

Source: built according to the State Statistics Committee of Ukraine.

Since the volume of honey production in Ukraine is much higher than the consumption of this type of products by Ukrainians, due to the low purchasing power of the population, Ukraine practically does not feel the need for its import. However, according to the State Statistics Service of Ukraine, import of honey to Ukraine in 2017 compared to 2011 has increased by almost 29 times (or by 55 tons) (Figure 2).

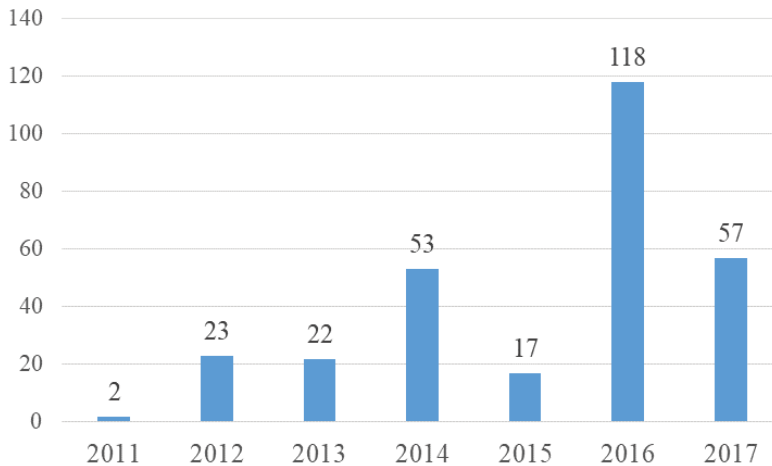


Figure 2 - Dynamics of import of honey to Ukraine in 2011-2017, tons

Source: built according to the State Statistics Committee of Ukraine.

In 2016, compared with 2015, the import of honey has increased significantly, namely by 101 tons. This undoubtedly is a negative consequence of the rapid development of openness of the domestic market and the joining of Ukraine to European and world structures.

Exports of honey from Ukraine in 2017 compared to 2011 increased by almost 7 times or by 57912 tons (Fig. 3). The European Union remains the largest importer of Ukrainian honey. However, despite the significant achievements of Ukraine, it cannot yet be said that the industry is export-oriented, since the shipment of honey abroad is far from equal to the gross amount. The rapid growth of Ukrainian honey exports over the past decade has also contributed to the fact that in 2003 the European Commission recognized the compliance of its quality with European standards.

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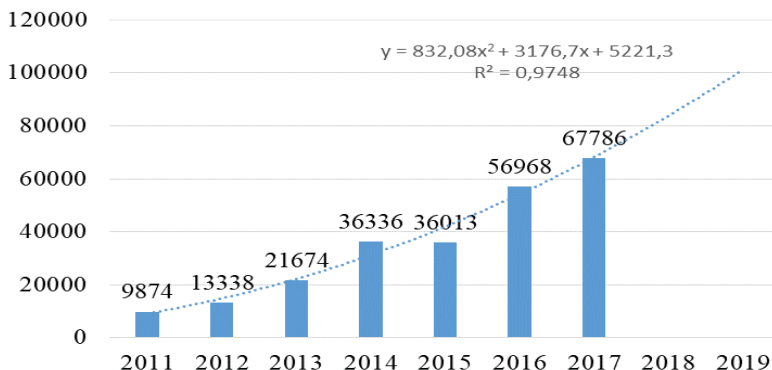


Figure 3 - Dynamics of export of Ukrainian honey for 2001-2017, tons

Source: built according to the State Statistics Committee of Ukraine.

Analyzing the indicators of production and exports of Ukrainian honey (Fig. 1, 3), it should be noted their mismatch in 2017 and the excess of exports over production. This is due to the existence of a significant shadow honey market, which is produced in households, but not accounted.

The world's largest importers Germany and the USA are also the largest buyers of Ukrainian honey in recent years. In cash equivalent, Germany bought honey in the amount of 34.2 million dollars, and the US - 27 million dollars. Another country where Ukraine sells honey is Poland, which takes the second stage with a volume of 21.8 million dollars. It is the markets of European countries and are considered to be promising.

It should be noted that in Ukraine bees are breeding in all natural and climatic zones, but most honey is collected in its northern and southeastern regions. Based on the ecological status of the placement of bee, the quality of the honey is different. For the sustainable development of beekeeping in Ukraine, it is necessary to analyze factors that can negatively affect the quality and safety of bee honey, and the domestic legal and regulatory framework for all stages of the production and sale of this product to harmonize with the European.

Some researchers argue that two global environmental problems directly affect bee-keeping and the quality of bee products: climate warming and changes in bee conditions due to anthropogenic impact [12] (Figure 4).

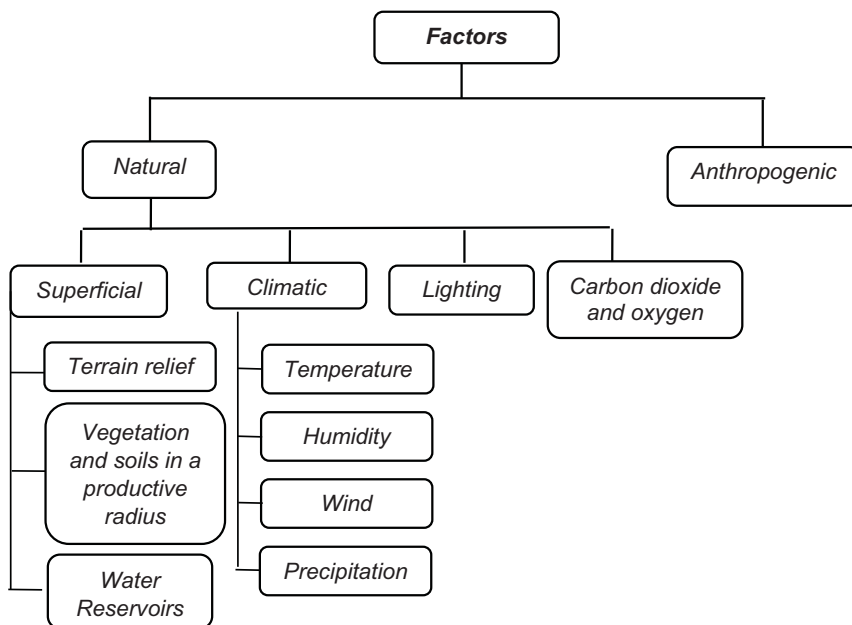


Figure 4 - Factors affecting the performance of bees

Anthropogenic factors, which can be both positive and negative, play a leading role in ensuring the life of bees, production and quality of honey. Among the positive factors is the increase in vegetation to improve the forage base and increase the productivity of honeybees. The village vegetation is small, and man mostly plants it: forest bands, anti-erosion plantings, gardens and parks. In the steppe areas, there is enough land suitable for planting cultural honey. Therefore, there are large arrays on

several hundred hectares of sainfoin, sunflower and other crops. Also on large areas, sow melon crops, medicinal plants.

From the first factor follows next: rational organization of movement of apiaries to the best places of honey collection. Now in Ukraine, there is an Instruction on the prevention and elimination of diseases and poisoning of bees, according to which apes are placed in a safe area out of infectious diseases of bees in dry, sun-covered areas, protected from winds in places. The territory of the stationary apiaries are fenced, planted with fruit trees and bushes [14]. It is important to implement veterinary and sanitary and zoo-hygienic measures to ensure the health of bees and the quality of bee products. Knowledge of the basics of hygiene and sanitation and the fulfillment of their requirements is of great economic and economic importance. The implementation of the rules of industrial hygiene and sanitation on apiaries consists of the fulfillment of the requirements of the veterinary and sanitary rules of the content of bees, approved by the Main Directorate of the veterinary service of Ukraine [14].

Favorable anthropogenic factors also include increasing the productivity of bee on the basis of the maintenance of strong and healthy bee families, systematic breeding and breeding work and providing bees with sufficient amount of fodder for the winter [13].

An important concern for honey producers is to regulate the content of antibiotics in the product. Today, more and more unscrupulous producers use antibiotics not only for the treatment of bees, but also for daily prevention and increase the productivity of honey bee, as the climatic conditions do not allow the whole year to be bee in open space. The cold period of the year is quite severe and so many beekeepers use antibiotics to keep the bee families in good condition and ensure their survival. It is also known that bees are ill due to different viruses, bacteria, mushrooms, parasites, so antibiotics that are allowed in Ukraine are also used for their treatment, but sometimes this process is not sufficiently controlled.

Treatment of fields near pesticides with pesticides is also a significant negative anthropogenic factor. The problem is the lack of strict control by beekeepers over whether pesticides or herbicides have been cultivated fields and crops from which raw materials are collected by bees. Uncontrolled use of pesticides, especially in honey crops, leads to massive death of bees.

For Ukrainian farmers, the urgent question remains: how to protect crop plants from pests and do not harm the bees? In recent decades in the world there is "a syndrome of destruction of bee colonies (families)". And Ukraine has become another place on the map, where it is progressing.

One of the economic aspects of delivering quality honey from Ukraine to world markets is the low cost of selling honey abroad compared to other high-quality honey leaders, as in Ukraine (Figure 5).

Thus, the average export price of New Zealand honey is the highest, and is \$ 24.32 / kg due to the unique nature of the honey content of this country. The second step is Germany, with 5.81 dollars / kg of honey, followed by Brazil - 4.48 dollars / kg; Ukraine is one of the last positions, even lower than China, which sells low-quality honey, with only 1.98 dollars / kg in 2017.

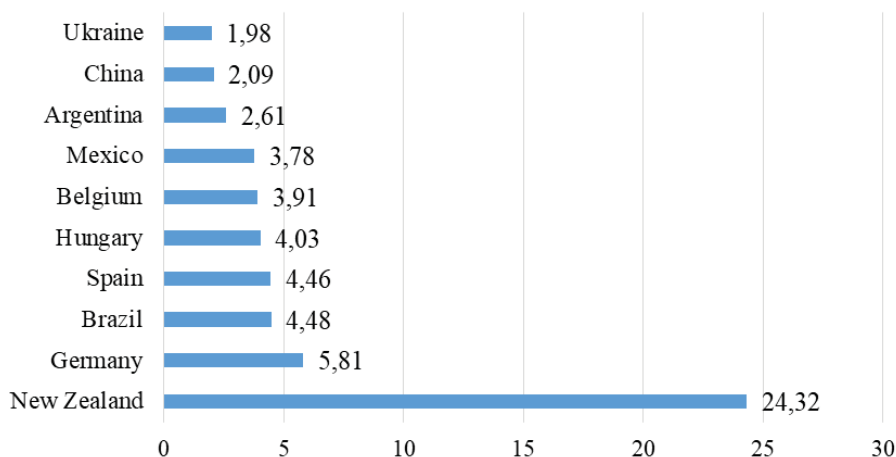


Figure 4 - Average export price for 1 kg of honey of the largest exporters of the world in 2017, USD.

Source: FAOSTAT data.

The introduction of an in-depth and comprehensive free trade zone between Ukraine and the EU from 01.01.2016 creates new opportunities for increasing the production and export of beekeeping products. At the same time, it increases the responsibility of Ukrainian producers of honey for the quality of goods supplied to foreign markets. Even through minor variations in the quality of the product, importing countries are subject to severe sanctions. The high competition between honey producers in the markets of Europe and the world, very high requirements for the quality and safety of products compel domestic producers to comply with the "rules of the game", which are formed on the markets.

4. CONCLUSIONS

Studies conducted provide the basis for the following conclusions:

1. Integration of Ukraine into a globalized economy requires the adaptation of the institutional support of the beekeeping industry to the existing international trade conditions and product quality standards. Honey producers' compliance with the requirements for high quality products guarantees her competitiveness on the domestic, European and world markets.
2. The main economic and environmental problems on the way of supply of high-quality honey to Ukraine's world markets remain: low export price for honey; deterioration of the ecological situation in Ukraine and in the world; the cultivation of genetically-modified crops, the use of which by honey for the production of honey leads to unpredictable consequences; wide and uncontrolled use of pesticides and other chemical agents in agronomy; increasing use of antibiotics not only to treat diseases of bees, but also to stimulate their productivity; much of the honey produced is in the hands of households that continue to work "in the shadows" (illegally), do not show a desire to integrate, but they should ensure the highest quality of products in the first place.

3. The quality of domestic products and the trust of its population are the basis for further integration of the domestic honey market into the world. To support this state of affairs and its improvement in Ukraine, work is important on improving the legislative and regulatory framework in the field of beekeeping; modification, harmonization of standards for beekeeping products and their integration with European legislation.

4. Due to the need for quality control at all stages of honey production, it is necessary to improve local regulations and develop methodological recommendations for beekeepers:

- regarding registration of their activities and withdrawal from the shadow;
- regarding compliance with the quality and safety requirements of the products received;
- on possible ways to improve the efficiency of beekeepers through co-operation and other variants of associations for the gradual introduction of the HACCP quality control system.

5. The necessity of combining beekeepers and traders to substantiate the safety of honey, which is being sold abroad in the necessary volumes, as well as elimination of non-tariff barriers is substantiated.

6. In order to further protect the health of honey in accordance with the EU Regulations, beekeepers must adhere to honey production technology without antibiotics.

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