

## ECONOMIC ASPECTS OF BEEKEEPING BUSINESS ACTIVITY IN UKRAINE

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*Beekeeping is one of the potential businesses in Ukraine. Country has a long history of this business activity development. Nowadays beekeepers in Ukraine use only 10 % of branch potential. Natural and labor conditions of Ukraine allow significant increase of the country share of beekeeping products in the international market.*

*The study tries to examine real estate of this agricultural branch with help of open data resources and beekeepers survey. Small and middle-sized apiaries was taken to account because as open data show they are the main players on market of beekeeping products and services in Ukraine. For example, if talk about honey production in the country, we can see that big enterprises produce only 1.5%.*

*Beekeeping activity in Ukraine has some legislative and economic problems. The main problems for beekeepers are low wholesale honey prices, lack of cooperation and lack of government support.*

*In study are some advices for improvement estate of apicultural business based on example of experiences of other countries and on results of survey. For instance, in USA beekeepers get 50% of revenue from pollination payments and in Ukraine this aspect is not regulated legislatively.*

*The most marketable bee product is honey, but its value is many times smaller than the value of pollination. The study shows how honey production and others kind of apicultural production and services (propolis, vax, bee colonies, pollen, pollination services, apituristic services, royal jelly) are developed in Ukraine, and what problems beekeepers faces nowadays.*

*Previous researches were focused mainly on honey production and based on open data and data of experts survives. Researches about beekeepers cooperative movement in Ukraine did not take to account the desire of beekeepers to join the cooperatives. All this aspects were included to the research.*

**Key words:** apiculture, beekeeping, economy, business, bioresources

### Introduction

Beekeeping has a long history on the territory of Ukraine. More than thousand years ago in times of Kiev Rus existed property rights on bee colonies. First example of beekeeping legislative regulation was founded in XI - XII centuries in document "Ruska Pravda". In 1814 Ukrainian P.I. Prokopovych investigate frame beehive that helped to increase economic productivity of apiculture [3]. In 2017 Ukraine took 5 place in list of largest natural honey exporters. Country has great potential for development in this area. however in Ukraine used only 10% of real potential in this branch [7]. Country has real chances to become a world leader in honey production and providing other products and services of beekeeping. That is why it is important to research beekeeping in Ukraine and to find out ways of economic efficiency increasing of the branch.

The aim of this study is to determine the basic socio-economic parameters of business based on selling products and services of beekeeping in Ukraine using data from the open resources such as State Statistics Service of Ukraine, Food and Agriculture Organization of the United Nations, and from interviews of beekeepers from different regions of country. The previous researches of this topic were based on open data and data of experts survives (Hrytsenko V. L. [2]). The researches about cooperative movement did not take to account the desire of beekeepers to join the cooperatives (D. B. Zhuchenko [8]) and official registration of apiaries. All this aspects was included in the research.

### Materials and methods

The overview on Ukrainian beekeeping were made with help of primary and secondary data. Primary data were collected from questionnaire survey. Total 80 beekeepers from 21 regions of Ukraine that owns small and middle size apicultures were surveyed with help of electronic forms and face-to-face interview. Questionnaires included social and economic aspects

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During the study, statistical methods, methods of economic analysis, as well as methods of synthesis, comparative and correlational analysis were used. For the statistical analysis, the Microsoft Excel 2010 package was used.

### Results and discussion

Ukrainian beekeepers gat profit mainly from honey selling. Official statistics data shows that amount of honey production in Ukraine rasing year by year an part of enterprises production decrease. This tendency caused by decreasing number of apiculture enterprises and concentration production mainly in individual apicultures (Table 1).

**Table 1. Honey production in Ukraine [1]**

	All types of agricultural holdings (tones)	Agricultural enterprises (tones)
1960	42202	18131
1970	35598	16295
1980	33409	14584
1990	50858	10837
1995	62728	7253
2000	52439	3564
2010	70873	1620
2013*	70875	1306
2014*	66521	982
2015*	63615	918
2016*	59294	901
2017**	56781	898

\*Data about occupied territories of Ukraine was not included

\*\*Prognosis

That is why we decided to pay attention on small honey producers that occupied main part of Ukrainian beekeeping products and services market.

Ukraine has exhausted annual quotas for duty-free honey exports to the EU already on January 11 in 2018. At the

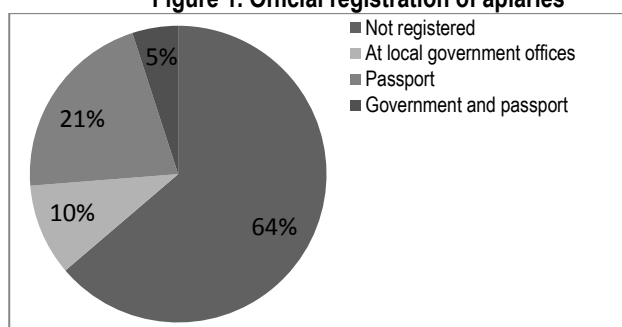
same time there are about 400 thousand beekeepers, who produce about 70 thousand tons of honey in Ukraine. About 57 thousand tons of honey Ukraine exports - mainly to the European Union [6].

**Legislative characteristics.** One of the questions in survey was about registration of apiary. We had find out that most of beekeepers surveyed (51 among 80) has any documents for they apiaries. Some of them registered apiary at local government offices and some has special passports (Figure 1).

Beekeepers survived explained that they do not want to registre apiary because for the passport they have pay nearly 1,000 UAH every year, and this document does not give them some preferences like subsidies.

We find out positive correlation between registration and way of selling honey (Table 2). Beekeepers who are not registered rarely sell honey at retail on local markets. Also there is positive correlation between amount of honey selled and registration.

**Figure 1. Official registration of apiaries**



**Social and economic characteristics of beekeepers surveyed.** The average age of the beekeeper was 38.63. The minimal age of beekeeper was 19 and the maximal was 70. Among 80 surveyed persons was only 1 woman (1.25%). The education in field of beekeeping have 13 (16.25%) beekeepers surveyed.

Apiary is the main type of occupation for 17 beekeepers (21.25%). There is positive correlation between apiary size and type of occupation (Table 2). Also there is negative correlation between type of occupation and average rate of bee colonies mortality. If beekeeper has any another job or business the rate of bees mortality is lower. There are no strong connection between region of apiary location and mortality rate. Also we find out dependens between occupation of beekeepers and amount of honey sold.

The average size of apiary was 35.44 bee colonies. The average amount of honey sold was 735.08 kilograms. It is mean that average productivity of colonie is 20,74 kilograms. We find out that average productivity of colonies is higher (27.15 kg) if beekeeper use seasonal migration.

Honey production is the most popular kind of business activity between beekeepers survived. Sell this product 73 (91.25%) of them. Also 3 (3.75%) beekeepers survived do not provide any economic activity with apiary and use it for they own needs. Two beekeepers (2.5%) sell only bee colonies.

The beekeepers survived named low wholesale honey prices in last years as one of the main problems of branch (Figure 2). They talk about conspiracy of purchasers. This problem could be solved by lobbying interests of beekeepers with help of professional unions or cooperatives.

**Table 2. Dependens between some characteristic of apiaries**

	Quantity of bee colonies	Occupation of beekeeper	Bees mortality rate	Way of honey selling	Registration of apiary	Amount of honey selling
Quantity of bee colonies	1					
Occupation of beekeeper	<b>0.567</b>	1				
Bees mortality rate	0.787	<b>-0.545</b>	1			
Way of honey selling	0.147	-0.354	0.251	1		
Registration of apiary	0.432	-0.404	0.466	<b>0.542</b>	1	
Amount of honey selling	0.833	<b>0.670</b>	<b>0.757</b>	0.400	<b>0.550</b>	1

Among beekeepers survived 57 (71.25%) sell more than one apiary product or service. The structure of product and services is wide (Table 3).

The perspective direction of beekeeping is pollination services. However pollination payments in Ukraine are not obvious and farmers do not interesting in this. On the opinion of Andriy Yarmak, expert of Food and Agriculture Organization of the United Nations, problem can be solved by providing information for farmers. Every year because of not enough pollination Ukrainian agricultural sector loses 3 mlrd. UAH. For example in USA beekeepers get 50% of revenue from pollination payments [7]. And as we can see rate of pollination services providing among beekeepers survived is comparatively low - 6.25% (Table 3).

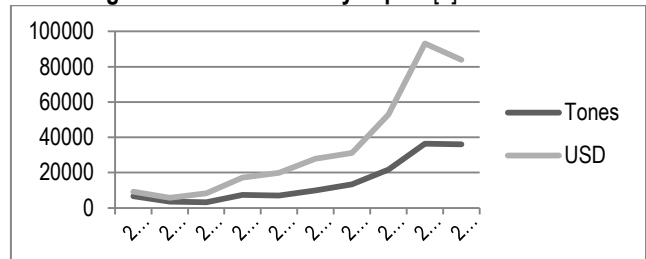
**Table 3. Products and services selling by beekeepers survived**

Product or service	Quantity of beekeepers involved	Percentage of beekeepers involved
Honey	73	91.25%
Propolis	31	38.75%
Vax	36	45%
Bee colonies	25	31.25%
Pollen	20	25%
Pollination services	5	6.25%
Apituristic services	2	2.5%
Royal jelly	2	2.5%

Only 8 (10%) respondents are members of professional unions and no one participate in cooperative. However 56 (70%) of respondents want to join cooperatives. The experience of Georgia where 50% of all coops are beekeepers cooperatives shows that subsidies from government and international organizations can stimulate the process of cooperation [5].

Also there are low rate of apiculture seasonal migration (40%) and cooperation with farmers (12.5%) among beekeepers survived. However this two factors provide increasing of apiculture productivity.

**Figure 2. Ukrainian honey export [4]**



**Conclusion.** Honey production is the most popular business activity among Ukrainian beekeepers. To increase revenue from this kind of sells beekeepers have lobby their interest on market. One of the ways to improve situation is subsidizing of cooperatives movement. Subsidizing of separate beekeepers or cooperatives can also be stimulation for official registration of apiaries. Us survey shown there is quiet low rate of registration. And there is dependence between size of apiary

and desire of beekeepers to pass the registration process.

Great role in beekeeping development is cooperation with farmers and providing pollination payments.

Ukraine has great potential to become one of the world leaders not only in honey production and export but also in providing others apicultural products and services, such as royal jelly production etc. However this branch of Ukrainian agriculture use only 10% of its potential now.

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#### **Шкарупа О. В., Треус А. А. Економічні аспекти ведення бізнесу в сфері бджільництва в Україні**

*Бізнес у сфері бджільництва має достатньо високий потенціал для розвитку в Україні. В даний час бджолярі використовують лише 10% галузевого потенціалу. Природні умови України дозволяють значно збільшити частку вітчизняних продуктів бджільництва на міжнародному ринку.*

*У статті зроблено спробу дослідити реальний стан цієї сільськогосподарської галузі за допомогою відкритих ресурсів та даних, отриманих після опитування бджолярів. До уваги не брались промислові підприємства оскільки дані, отримані з відкритих джерел показують, що вони не є основними гравцями на ринку продуктів та послуг бджільництва в Україні. Наприклад, якщо говорити про виробництво меду, то великі підприємства займають лише 1,5% цієї ринкової ніші.*

*Бджільництво в Україні стикається з проблемами законодавчого регулювання та економічними проблемами, такими як низькі закупівельні ціни на мед та відсутність державної підтримки галузі.*

*У дослідженні подано рекомендації щодо вдосконалення ведення бізнесу у сфері бджільництва, які базуються на результатах опитування та прикладах з досвіду інших країн.*

*У дослідженні показано, як в Україні розвивається реалізація меду та інших видів товарів і послуг бджільництва (прополісу, воску, бджолосімей, пилку, маточного молочка, послуг запилення, апітуристичні послуги).*

*Попередні економічні дослідження в цій галузі були зосереджені в основному на виробництві меду та базувались на даних з відкритих джерел і експертних опитувань. А у дослідженнях розвитку кооперативного руху не враховувалось бажання окремих бджолярів приєднуватися до кооперативів. Усі вищезгадані аспекти були враховані у даному дослідженні.*

**Ключові слова:** бджільництво, пасіка, економіка, бізнес, біоресурси

#### **Шкарупа А. В., Треус А. А. Экономические аспекты ведения бизнеса в сфере пчеловодства в Украине**

*Бизнес в сфере пчеловодства имеет достаточно высокий потенциал для развития в Украине. В настоящее время пчеловоды используют лишь 10% отраслевого потенциала. Природные условия Украины позволяют значительно увеличить долю отечественных продуктов пчеловодства на международном рынке.*

*В статье сделана попытка исследовать реальное состояние этой сельскохозяйственной отрасли с помощью открытых ресурсов и данных, полученных после опроса пчеловодов. Во внимание не брались промышленные предприятия поскольку данные, полученные из открытых источников показывают, что они не являются основными игроками на рынке продуктов и услуг пчеловодства в Украине. Например, если говорить о производстве меда, то крупные предприятия занимают лишь 1,5% этой рыночной ниши.*

*Пчеловодство в Украине сталкивается с проблемами законодательного регулирования и экономическими проблемами, такими как низкие закупочные цены на мед и отсутствие государственной поддержки отрасли.*

*В исследовании представлены рекомендации по совершенствованию ведения бизнеса в сфере пчеловодства, основанные на результатах опроса и примерах из опыта других стран.*

**Ключевые слова:** пчеловодство, пасека, экономика, бизнес, биоресурсы

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