

SUPPORT FOR ECONOMIC INITIATIVES

**STUDIES OF ECONOMIC PROSPECTS OF THE
BEEKEEPING SECTOR IN AZERBAIJAN**

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OVERVIEW

Azerbaijan shares 61 percent of nectar vegetation in the South Caucasus and having regard to this fact, we can expect ample opportunities and perspectives in this field in the future. Mainly, there are bee populations such as "Gabagtepe", "Gonagkend", "Azerbaijan", "Talysh" and "Nakhchivan" of "Blue Mountain Caucasus" and "Yerllow Iran" bee species in the country. 2 bee species of 24 ones around the world exist in Azerbaijan.

The legislative framework of beekeeping sector was established on the basis of Law on "Beekeeping" adopted on February 2, 2009. Cabinet of Ministers has adopted about 15 regulatory acts based on this Law. These procedures regulate the principles and regulations on strengthening state supervision over the beekeeping, establishment of bee gardens, importing other bee species, and transfer bee-families. Cabinet of Ministers has also approved the list of 96 medicines used in the treatment of bee diseases.

The first national standards on the quality of bee products have been drafted after 2015. By Resolution of the State Committee dated February 12, 2016, **AZS 849-2016 "Honey"** (CODEX STAN 12-1981) standard has been approved. This standard regulates quality indicators pertaining to all types of honey produced by bees, provided for processing and intended for use by people.

The study has come to the following conclusion:

- **Growth is observed in the number of bee-families.** While a small number of bee-families across the country, recent years show a tendency to increase. According to the State Statistics Committee, the number of bee-families across the country increased more than twice in 2006-2015, and has reached from 115618 to 251233. 248668 bee-families fall to households, and 914 to private entrepreneurs. The region where bee-families mostly populate is Nakhchivan. 28% of bee-families across the country fall to this region. 72.3% of bee-families across the country fall to 4 economic regions (Ganja-Gazakh, Sheki-Zagatala, Lenkaran, Nakhchivan).
- **Records of bee-families are not properly kept.** The study has identified that records of bee-families in the country are not kept properly. It was impossible to determine the exact number of bee farms on the official website of the State Statistics Committee, in the discussions with the authorities, and during the conversation with beekeepers. Experts inform that approximately 8-10 thousand bee farms are operating in the country.
- **Production of local pure honey does not meet demand.** Pure honey produced in the country is unable to meet domestic demand, the demand is met through import. The annual volume of local pure honey production is approximately 2400-2500 tons. Pure honey production has increased more than twice in the last 10 years. According to the State Customs Committee, Azerbaijan, 69.66 tons of pure honey was imported to Azerbaijan in 2015, and increase has been observed recent years.
- **Export potential of pure honey is weak.** One of the targets of the study was the investigation of the export potential of the Azerbaijani honey. The results of the study showed that the export of pure honey was prevented both by high prime cost and lack of the required amount. In 2015, the average export price of pure honey amounted to \$11.2 per kg. During this period, the price of the most expensive French honey was twice cheaper and amounted to \$ 6.71. The average price of the imported honey was \$1.5-2.5 per kg.
- **Productivity of honey bees is very low.** There is no a single statistical database on the level of productivity of bee-families. The study identified that the level of honey productivity ranges between 5-20 kg. The experiences of other countries show that, in

some countries, the level of honey productivity of bee-families reaches 40-50 kg.

- **There is the problem of selling natural honey.** Despite high demand for pure and quality honey, the problem of selling honey still exists in the country. Importation of fake honey to the internal markets creates problems for selling natural honey. Selling of pure honey is provided at retail. There are no any wholesale channels. Retail sales include sales in trade outlets, individual sales and fairs organized by the relevant government agencies. Beekeeping farmers prefer to sell honey individually, mainly in their farms.
- **Beekeepers' international representation is weak.** Azerbaijan is not represented in Apimondia – the International Federation of Beekeepers' Associations. Currently, Apimondia has 94 full and 20 associate members. Almost all the countries of the former Soviet Union are represented in this organization by one or two organizations.
- **Breeding-selection work is performed unsystematically.** Bees' degeneration has a negative impact on productivity. Experts cite a reason the chaotic and unsystematic activities in the field of beekeeping. Bee species should be imported for the purpose of scientific research, but sometimes at the initiative of unauthorized beekeepers new bee species are imported to the country. And it results in bees' degeneration due to their mingling.
- **There is lack of personnel in beekeeping.** The study shows that, despite the significant number of beekeeping farmers in the country, there are almost no qualified professionals in this field. The observations and expert discussions show that there is lack of specialists in the country in the field of bee diseases, bee feeding and managing beekeeping farms. Current educational institutions do not prepare personnel for beekeeping, and there is no beekeeping specialty in the country. Veterinarians specializing in animal diseases do not have enough knowledge about bee diseases.
- **There are no necessary laboratories.** There are no laboratories for measuring the quality of pure honey and analyzing bee diseases. While analyzing the quality of honey, it is impossible to determine the nectar plants and the presence of GMO. The existing laboratories do not allow determining the issues pertaining to beekeeping.
- **Records on the consumption of pure honey kept.** The State Statistics Committee does not have statistics on the volume of consumption of pure honey in the country. According to official statistics, the annual consumption of population is about 1,000 tons. Independent experts consider that the annual consumption potential of the country is around 4000-4500 tons.

It would be advisable to take the following measures for the development of beekeeping in Azerbaijan:

- Adoption and implementation of the 5-year State Program on the “Beekeeping Development” covering 2017-2021 for establishment of state support mechanisms for the development of beekeeping, the growth and export of bee products, the strengthening of export capacity as well as the capacity building and the strengthening logistics;
- Allocation of funds from the state budget for the beekeeping farms to enhance the competitiveness of their products and to stimulate the development of local beekeeping farms;
- Provision of a single state registration to ensure the efficiency of state support to beekeeping farms;
- Establishment of the privileged loan mechanisms to ensure the access of beekeeping

farms to low-interest financial resources;

- By decision of the Cabinet of Ministers, to include pure honey in menu of the population as well as schoolchildren and military to provide them with high-caloric feeding and to promote new production;
- Establishment of laboratories for bee diseases to prevent mass destruction of bees and to breed healthy bees;
- Creation of specialties in beekeeping and training specialists in the territorial higher educational schools (Ganja Agrarian University) to train professional staff (management, bee diseases) in the field of beekeeping for development of beekeeping industry;
- Planting nectar vegetation and plants and creating forest plantation covering by those plants for increasing productivity of honey bees;
- Establishment of the centralized breeding and specialized testing farms in the various regions of the country to protect genetic resources, and allocation of special areas for this purpose by the state;
- Drafting quality standards for a range of bee products as well as national standards on packaging, storage, transportation and sale of these products;
- Establishment of professional associations of beekeepers in Azerbaijan and provision of technical support by the state;
- For strengthening the cooperation of the Azerbaijani beekeepers at the international level, ensuring its recognition around the world, acquiring and importing the advanced technologies, it is necessary to become a member of Apimondia – the International Federation of Beekeepers' Associations.

INTRODUCTION

Historically, beekeeping has been a traditional agricultural activity in Azerbaijan. Although some necessary material and technical base, and infrastructure for the beekeeping development had been established under Soviet rule, the sector collapsed with the disintegration of the Soviet Union. In particular, those plants that were merged and expanded under Soviet management were later split into small ones. Beekeeping in the country was ruled and preserved by amateur beekeepers for a long period of time. Today, apiaries are small in size.

The number of bee families as of early 2016 exceeds 250,000, with beekeepers estimated to be between 8,000-10,000. There are 25-31 honey bee colonies per bee-farming on average. This is a small number. According to experts, in order to gain income from beekeeping, there should be at least 200 colonies on each bee farm. Bee families have not been equally distributed by regions. According to experts, there is potential to bring the number of bee families to 600,000-700,000 in the country, adding that the Aran Economic Region may turn bee-keeping into a great advantage. However, the intensive sowing for agricultural production in the region creates obstacles for beekeeping.

2,4-2,5 tons of the country's demand for pure honey is met through domestic production. Although the pure honey production has increased by more than twice in the last 10 years, it is unable to fully meet the demand. Part of the honey demand is covered through import. Import is also increasing from year to year. Despite export potential of natural honey, in reality there are serious problems as well. The main reason is the expensive cost of the honey and the lack of necessary amount. Due to this reason, pure honey is exported as a raw material without processing and packaging.

Although farm owners have some knowledge on beekeeping, except for some exceptions, their work mainly consists of amateur activity. The information obtained by us in the course of study shows that there is lack of specialists in bee diseases, bee breeding and management of beekeeping farms. The current educational institutions do not train personnel in the beekeeping, and there is no beekeeping specialty. Knowledge of the veterinarians specializing in animal diseases is not enough for bee diseases.

Beekeeping farms are facing serious problems in obtaining financial resources. Beekeepers face difficulties in obtaining a soft credit allocated through the National Fund for Entrepreneurship Support. Interest rate and conditions of the loans granted by commercial banks are very hard. The current profitability of the loans provided by the commercial banks is not affordable. Although international organizations provide technical support to beekeepers through some projects, there is a great need for sustainability of the projects. There is no loan mechanism of the government. Legislative framework for granting loans to the exporters was established in 2016 but its granting mechanism is not ready yet.

In the course of study the authors have investigated the legislative acts as well as state programs regulating beekeeping sector in Azerbaijan. The state standards regulating the quality of pure honey were analyzed as well.

To assess the current situation in the field of beekeeping, meetings were held with

beekeepers. The authors have also visited various regions of Azerbaijan including Gabala, Ismayilli, Sheki, Gakh regions and interviewed local beekeepers. Short interviews by phone were conducted with some beekeepers of other regions. In addition, discussions were held with experts of the relevant structures of the Ministries of Agriculture and the Economy, and studied the perspectives of the state policy in this field.

The study mainly consists of 4 sections. The first section is **“Current Situation of Beekeeping in Azerbaijan.”** In this section studies and evaluates the current situation of beekeeping farms in Azerbaijan, the range, quality and production capacity of the bee products, their export potential and competitiveness in foreign countries, the condition of the laboratories analyzing bee diseases, capacity building in beekeeping sector, etc.

The second section of the study is dedicated to the international practice. The section **“Development of Beekeeping in the World”** provides the information on successful experience of the developed countries in beekeeping sector, state policy in this field support made to beekeepers, the range and price of bee products.

The third section conducts the strengths and weaknesses opportunities and threats analyses of the bee-keeping sector in Azerbaijan.

The final section makes recommendations on the learned lessons of the study and the development of beekeeping farm.

Beekeeping has been the focus of our attention since the diversification of national economy. Since the beekeeping sector is a small business category, we have studied it as part of the Project “Small Business Development Support in Azerbaijan” with joint funding of USAID.

CURRENT SITUATION OF BEEKEEPING IN AZERBAIJAN

When one talks about necessity of development of not-oil sector in our country, beekeeping is mentioned as one of potential spheres. Both knowledge and skills passed from father to son, and favorable climatic condition proves possibilities of development of beekeeping. Sixty-one percent of floras giving nectar in the Southern Caucasus are Azerbaijan's share; and this lets us talk about future significant potential possibilities and perspectives in the sphere.

Beekeeping is the safest kind of agriculture in the view of ecology. In the current period when the question of safety of food products is of global importance, inevitability of development of beekeeping draws especial attention. Beekeeping in Azerbaijan has its historical roots and traditions. Azerbaijan is the native land of Grey Caucasus Bee – one of the most famous bee sorts in the world. There are more "Gabagtepe", "Gonagkend", "Azerbaijan", "Talysh" and "Nakhchivan" bee populations of "Grey Mountain Caucasus", "Yellow Iran" bee sorts in the country. Two of 24 sorts existing in the world are available in Azerbaijan.

In the Soviet period, beekeeping farming was partly centralized, small farms became larger, necessary financial and technical base and infrastructure were created. Much works were performed for preparing professional staff in the sphere, pedigree-selection works and establishment of necessary laboratories. After collapse of USSR, transfer to the new economical control form, war in a part of the country caused destruction of beekeeping as well as other agriculture spheres created in the Soviet period. According to independent estimations, bee-keeping decreased for 45 per cent in 1990-1999's.¹

After Azerbaijan became independent, no attention was paid to beekeeping sphere for long period. Beekeeping was mentioned like an episode in some state programs at best. Since 2004, in 3 state programs (2004-2008's, 2009-2013's and 2014-2018's) approved for social-economical development of regions, development of beekeeping was indicated as priority sphere of agriculture and necessity of its development was emphasized.

Legislation base of beekeeping sector was created on the basis of the Law "**About beekeeping**" adopted on 2 February 2009. Improvement of selection- pedigree work, protection and improvement of the gene pool of local bee sorts and populations, breeding of honey bees with known origin, constant heritage, high productivity and development of beekeeping by creating legal base for increase of production of beekeeping products – were the main goals of the Law. After the Law came to force, the Cabinet of Ministers adopted the following statutory acts:

- **Regulations of amateur and professional beekeeping** (confirmed by *Resolution* 116 dated 5 August 2009 of the Cabinet of Ministers)
- **Regulations and forms of veterinary and sanitary passport (certificate) for**

¹ <http://azecology.az/az/news/inthecountry/2070-az601rbaycanda-ar3052313051305q.html>

- apiary**, (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
- **Regulations of districting sorts and populations of honey bees** (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
 - **Regulations of creating state selection and pedigree (gene pool) apiaries** (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
 - **Regulations of registration of beekeeping farms** (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
 - **Regulations and forms of getting and submitting statistical data on beekeeping** (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
 - **Regulations of determining standard power of bee families** (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
 - **Regulations of delivering districted bee sorts to the territory of Azerbaijan Republic** (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
 - **List of pharmaceuticals used for treatment of bees** (confirmed by Resolution 116 dated 5 August 2009 of the Cabinet of Ministers)
 - **Regulations of performing state control of beekeeping fields** (confirmed by Resolution 19 dated 25 January 2010 of the Cabinet of Ministers)
 - **Regulations of locating and locating distance from health care, educational and cultural institutes for safety of population** (confirmed by Resolution 169 dated 26 October 2009 of the Cabinet of Ministers)
 - **Regulations and limitation cases of import to the territory of Azerbaijan Republic of stock and equipment used abroad in beekeeping** (confirmed by Resolution 144 dated 17 September 2009 of the Cabinet of Ministers)
 - **Regulations of taking measures against pests of bee families** (confirmed by Resolution 144 dated 17 September 2009 of the Cabinet of Ministers)
 - **Regulations of transportation of bee families to places of honey collecting and new location** (confirmed by Resolution 19 dated 25 January 2010 of the Cabinet of Ministers)

These regulations regulate principles and mechanisms of intensification of state control of beekeeping sphere, establishment of selection-pedigree (gene pool) apiary, supply into the country of other bee sorts, resettlement of bee families. The Cabinet of Minister approves the List of 96 kinds of medicines used for treatment of bees, too.

The first national state standard concerning quality of bee products was prepared after 2015. In 2015, by decision of State Committee Board on Standardization, Meteorology and Patent AZS 731-1-2015 (OIC/SMIIC 1:2011) **“Allowed food. General guiding document”** standard was adopted and pure honey and bee products were characterized as allowed food. **AZS 849-2016 “Honey”** (CODEX STAN 12-1981) standard was approved by Decision of State Committee dated 12 February 2016. The standard regulates quality indexes of all honey sorts produced by bees, submitted for processing and intended for direct

use of people. Existing standards can't completely control provision of bee products quality. Existing standards can't provide complete ensuring quality of bee products. Because existing standard covers only norms of consumption features of the natural honey. Nevertheless currently other products of beekeeping industry (propolis, bee milk, bee sting and so on) are produced. Besides that, standards of packing and delivering bee products need to be approved.

One of factors determining development of beekeeping is the number of bee families to reach required extent. Increase of number of bee families is observed the recent years. According to information provided by State Committee of Statistics, number of bee families was 251233 in our country by the end of 2015. 248668 of the bee families is the share of village and household, 914 – of private business. Experts consider these to be low rate. According to information from the Ministry of Agriculture, number of bee families in the country is forecast to reach 310 thousand by 2020. Besides increase of number of bee families, increase of productivity, improvement of selection-pedigree works, centralized packaging and labeling of produced honey are the other duties ahead.²

In 2006-2015's, number of bee families in the country increased twice, and 115618 reached 251233. It is overage increase of 13.6 thousand of bee families per year. Increase of bee families was different in different Economic Regions. The highest increase within the last 10 years was in Kalbajar-Lachin Economic Region (315%)³. In this Economic Region number of bee families 4678 reached 19414. **(Table 1)**

The second highest increase has been noted in the Nakhchivan Economic Region. Number of bee families on the territory of the Autonomous Republic increased for 205%, and number of 23 thousand reached 70 thousand. Only in Shahbuz district exist more than 20 thousand bee families, and in Ordubad and Julfa districts – more than 13 thousand. Besides that, there has been increase in the Aran Economic Region for 161,35%, in Yukhari Garabakh Economic Region - 128,54%, Sheki-Zagatala Economic Region - 105,85%. The number of bee families available in Baku in 2015, reached 0 in 2016. There has been a slight decrease in the Absheron Economic Region. **(Table 1)**

Shahbuz (20147) and Zagatala (16418) are two districts with the highest number of bee families in the country.

Table 1

Bee Families in Azerbaijan (2006-2015)

Economic Regions	Years		Percentage by year, (-) decrease, (+)
	2006	2015	

² Official website of the Ministry of Agriculture -

<http://www.agro.gov.az/7-nazir-heydr-sdov-goranboy-rayonunda-vtndalar-qbul-edib.html>

³ Kalbajar – As the Lachin Economic District is under Armenian occupation, the figure is based on data received from beekeepers in this economic district

			increase)
Ganja-Gazakh Economic Region	23465	37107	58,14%
Sheki-Zagatala Economic Region	20221	41625	105,85%
Lankaran Economic Region	19861	32483	63,55%
Nakhchivan Economic Region	23067	70396	205,18%
Kalbajar –Lachin Economic Region	4678	19414	315,01%
Dağlıg Shirvan Economic Region	9105	18331	101,33%
Guba-Khachmaz Economic Region	7621	15137	98,62%
Aran Economic Region	2890	7553	161,35%
Yuxarı Karabakh Economic Region	3560	8136	128,54%
Absheron Economic Region	1055	1051	-0,38%
Baku City	95	0	-100,00%
Total	115618	251233	117,30%

Source: State Statistical Committee

If one pays attention to location of bee families in the regions, it is clear that the biggest number of bee families concentrates in Economic Region Nakhchivan. Twenty-eight per cent of bee families in the country is the share of this Economic Region. The share of the Autonomous Republic has significantly increased within the latest 10 years. In 2006, its share was less than 20%. The share of Economic Region Sheki-Zagatala - the second among the biggest shares - decreased within the period from 17.5% till 16.6%. Decrease in Lenkoran Economic Region reached 12.9% from 17.2%. The share of bee families in the Ganja-Gazakh Economic Region decreased from 20.3% to 14.77%. In total, 72.3% of bee families in the country falls to the share of 4 economic regions (Ganja-Gazakh, Sheki-Zagatala, Lankaran, Nakhchivan). (Charts 1 and 2)

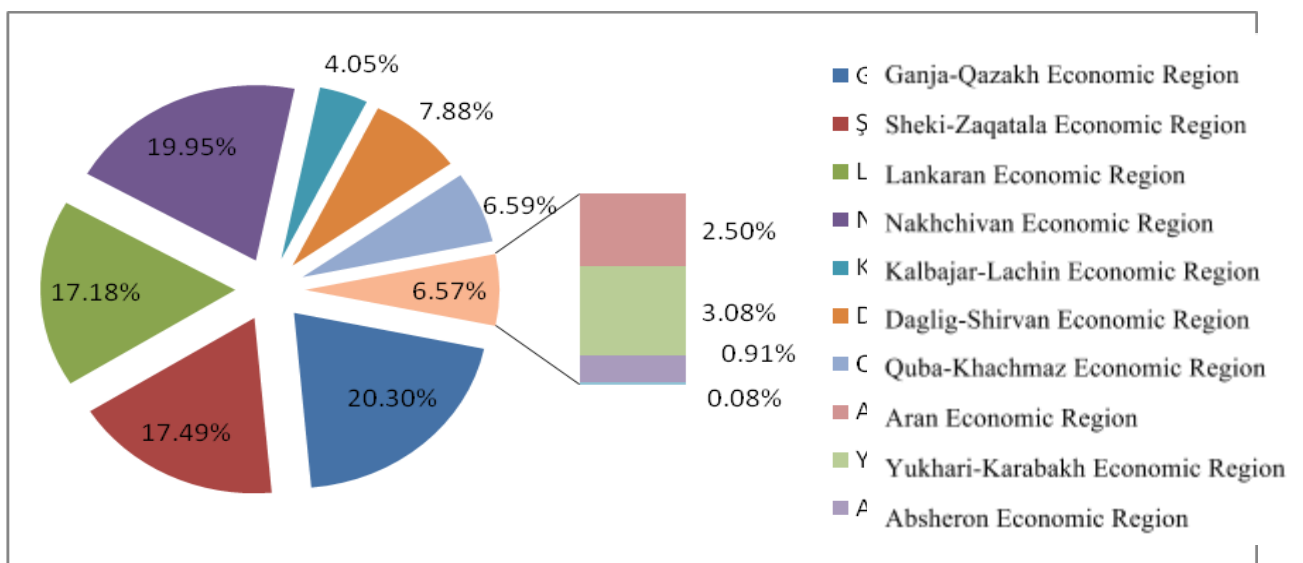


Chart 1. Distribution of Bee Families by Region (2006)

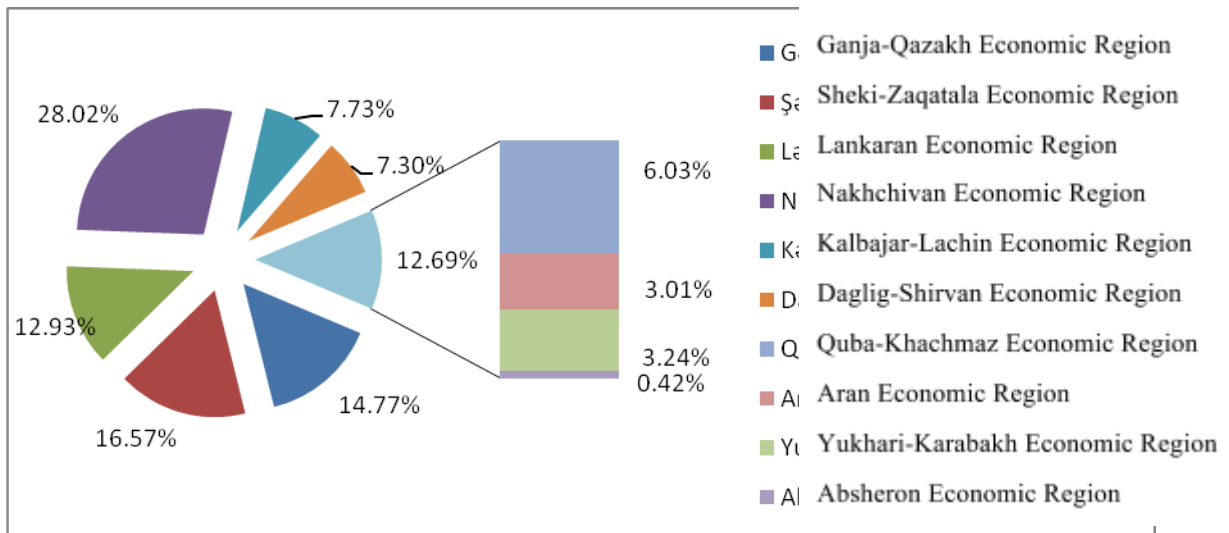


Chart 2. Distribution of Bee Families by Region (2015)

According to information provided by State Committee of Statistics in 2014, beekeeping is available in 1.2% of household in the country. 2.2% of household in villages, and 0.3% - in cities are engaged in beekeeping. In the household presenting Nakhchivan (4%), Sheki-Zagatala (3.4%), Ganja-Gazakh (2.8%) regions, people are engaged in beekeeping more than in other regions. Analysis of content of household shows that farms with quantitative content of 5 men prefer beekeeping. In such farms, 1.6% is engaged in beekeeping. The higher the education of the head of household farm, the higher is interest to beekeeping. Inspection of household shows that the owner of a farm with higher education prefers beekeeping in his farming. Bees are available in 1.8% of such farms. While in case of general secondary education it is 1.3%, secondary-vocational education – 0.8%, primary education – 0.7%. Household with owners in the age within 30-50 years prevail.

Results of inspections of households performed by State Committee of Statistics demonstrate that *there is a connection between income of people and interest to beekeeping*. The more income people get, the more interest to beekeeping increases. While the group of low income belonging to the first income quintile of household has 0.5% bees, in the last - 5th quintile the rate increases up to 1.8%. **(Chart 3)**

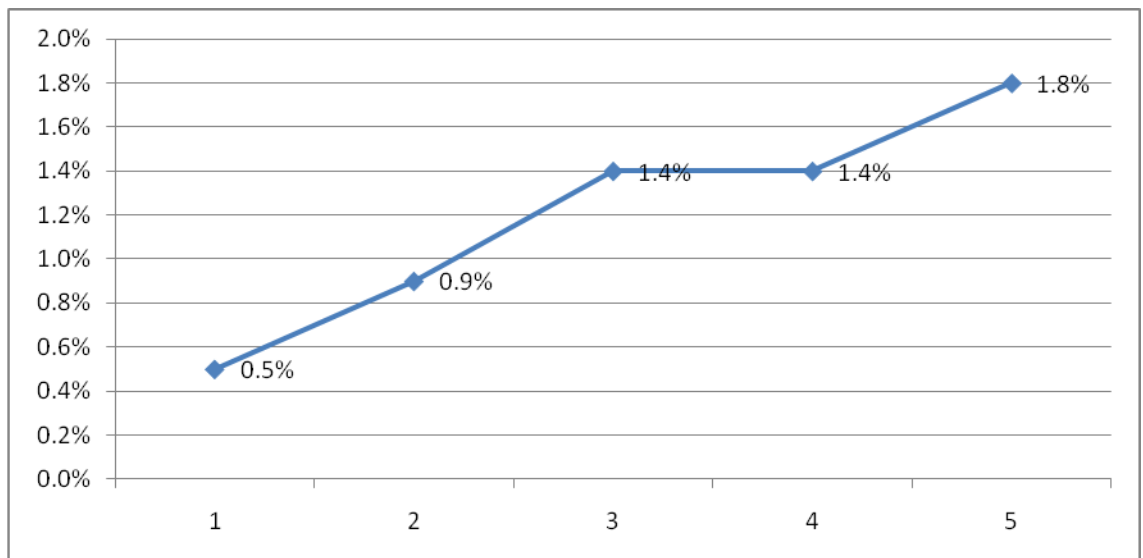


Chart 3. Distribution of Income Gains from Bee Families (2014)

Increase of bee families' number caused increase of beekeeping farms. But their concrete number hasn't been registered yet. It was impossible to determine concrete number of bee farms in official web site of the State Committee of Statistics, or in discussions with government bodies, or in conversations with beekeepers. Chairman of Azerbaijan Beekeepers' Union - Shamil Guliyev came to conclusion there are about 8-10 thousand beekeeping farms in the country. According to him, number of such farms was within 5-6 thousand 10 years ago, and the number has increased year by year. Head of Ginyat ogullar (sons) company from Sheki district - Letif Ginyatoglu confirms the number of beekeepers to be within 8 thousand. In this case, average number of bee families kept in one bee farm is within 25-31 for the country. And this is not enough to establish normal beekeeping farming, to reduce the prime cost of produced natural honey.

2400-2500 tons of country's need in pure honey consumption is met by internal production. Despite honey production has increased more than twice during the last 10 years, it can't completely meet the need. Production of pure honey reached its peak in 2013, later it decreased till 2.4 thousand tons. **(Chart 4)**

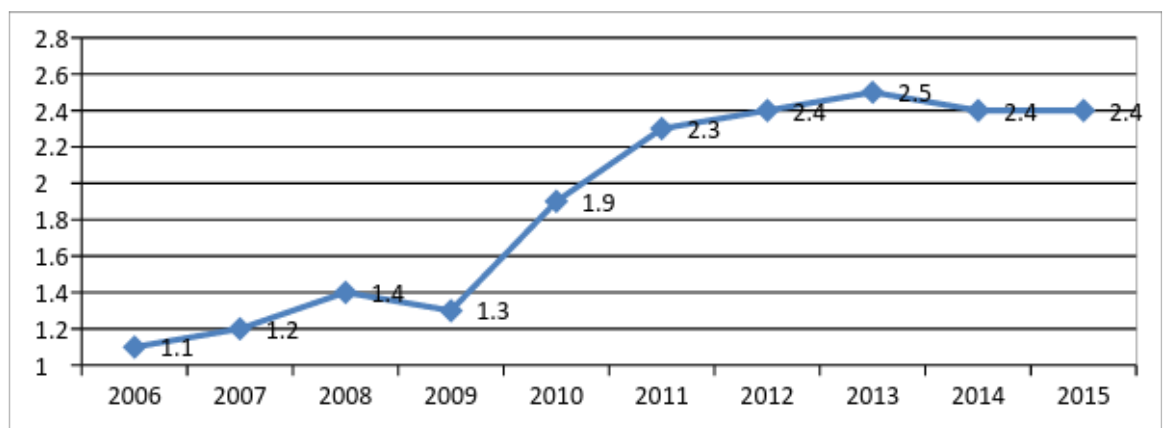


Chart 4. Honey Production by Year in 2006-2015, 1,000 tons

By different opinions, half of potential consumption of pure honey in the country can be provided by internal production at best. According to official information submitted by the

State Customs Committee, pure honey in total cost 188.4 thousand US Dollar, in total volume of 69.66 tons was imported to Azerbaijan in 2015. Pure honey in volume of 3.62 tons, in total cost of 40.41 thousand US Dollar was exported from the country in 2015. Average cost of each kg of the imported pure honey was 2.7 US Dollar, and each kg of exported honey – 11.2 US Dollar. (Table 2)

Imports and Exports of Honey in 2011-2015

Table 2

By Year	Imports		Exports	
	Tonnage	Value (\$ 1,000)	Tonnage	Value (\$ 1,000)
2011	39,3	101,8	-	-
2012	56,9	190,0	0,01	0,1
2013	59,1	171,7	-	-
2014	63	184,1	0,1	1
2015	69,66	188,4	3,62	40,41

Source: State Customs Committee

There has been an upward trend in honey imports over the past five years. 2011 saw 39.3 tons of honey imports, while 69.66 tons were imported in 2015, an increase of 77.3%. (Chart 5)

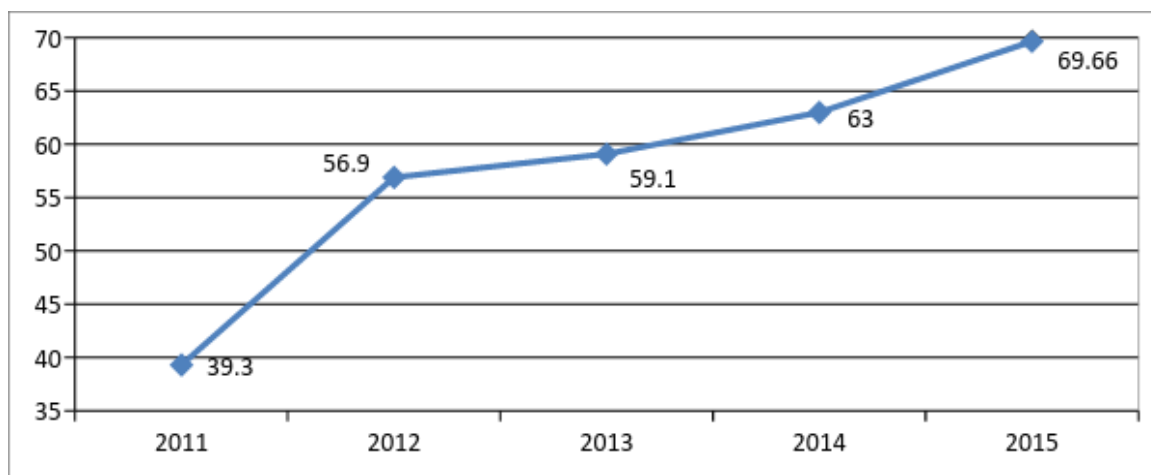


Chart 5. Trend of Honey Imports for 2011-2015

In the last five years, tendency to increase in import of pure honey was observed. If total volume of imported pure honey was 39.3 tons in 2011, in 2015 it reached 69.66 tons. The increase during the period is 77.3%. (Chart 5)

Unlike the import, the export has been unstable over the last five years. No pure honey was exported in 2011 and 2013. If 10 kg of honey was exported in 2012, 100 kg in 2014, while 3.62 tons in 2015. (Table 2)

Azerbaijan Imports of Honey in 2015

Table 3

Imports from Country	Imports		
	Tonnage	Value (in US\$ 1,000)	Average price per kg (\$)
1. Germany	22,03	54,67	2,48
2. Turkey	21,59	42,8	1,98
3. Russian Federation	9,92	44,35	4,47
4. Ukraine	6,71	11,56	1,72
5. Austria	2,87	4,42	1,54
6. France	2,36	15,83	6,71
7. Kyrgyzstan	1,76	6,3	3,58
8. Italy	1,28	5,24	4,09
9. Switzerland	0,51	1,67	3,28
10. Belarus	0,35	0,91	2,6
11. Spain	0,28	0,65	2,32

Source: State Customs Committee

According to official information, pure honey was imported to Azerbaijan from 11 countries in 2015. Main importers were Germany, Turkey, Russia and the Ukraine. 87% of the total import is the countries' share. The cheapest pure honey was imported from the Ukraine (1.72 USD/kg) and Austria (1.54 USD/kg), the most expensive honey – from France (6.71 USD/kg). (Table 3)

Independent investigations and observations show that pure honey in large volume brought to Azerbaijan from countries of the 3rd table, including Georgia and Iran, but it is not registered.

In the period when increase of not-oil export is priority in Azerbaijan, importance of export of pure honey is on the agenda. But investigations and experts' opinions show that **export potential of pure honey is low**. And one of the goals in preparing investigations was to investigate export potential of Azerbaijan honey. The results of the investigation showed that some factors prevent from export of natural honey. The first factor is high price of the local honey. In 2015, 3.62 tons of pure honey was exported from Azerbaijan. That is the highest rate during the last 5 years. Total export cost was 40.41 thousand US Dollar. Average export cost of pure honey was 11.2 Dollar per kg. The price is approximately twice more than the most expensive honey imported to the country from France (6.71 US Dollar). (Table 3)

The export price of pure honey is low at world markets. For example, average export cost in 15 countries producing honey most in the world is 3.2 Dollar. The cheapest price among them is in Malaysia (1 kg – 1.6 Dollar), the most expensive cost - in Hungary. (1 kg - 4.4 Dollar) (Table 6)

Rufat Mammadov – Head of Fund Stimulating Export and Investments in Azerbaijan

(AZPROMO) besides factor of cost thinks that required quantity and quality of pure honey are also necessary for export. According to him, there are no farms in Azerbaijan, producing honey in large volume; it more consists of scattered producers. The interlocutor indicated that works were performed to establish Association of Beekeepers to give new stimulus in the sphere and to increase export opportunities. By means of the Association, at the first stage, it is planned to export honey and honey products produced in Azerbaijan to Arab countries. According to him, honey will be exported in the form of raw material in order not to lose price competition. According to R.Mammadov, works are currently performed to present Azerbaijan honey under the name of a single brand in the world. But as the honey is produced in different farms, it is difficult to create a single brand from the view of content and quality. In most cases, provision of quality meeting international standards creates one of main difficulties for export.

The selling price of pure honey at markets of the country currently is 20-25 manats per kg. According to official information of State Committee of Statistics, in 2012-2015's, average price of pure honey raised from 15.82 manats up to 18.14 manats. (Chart 6)

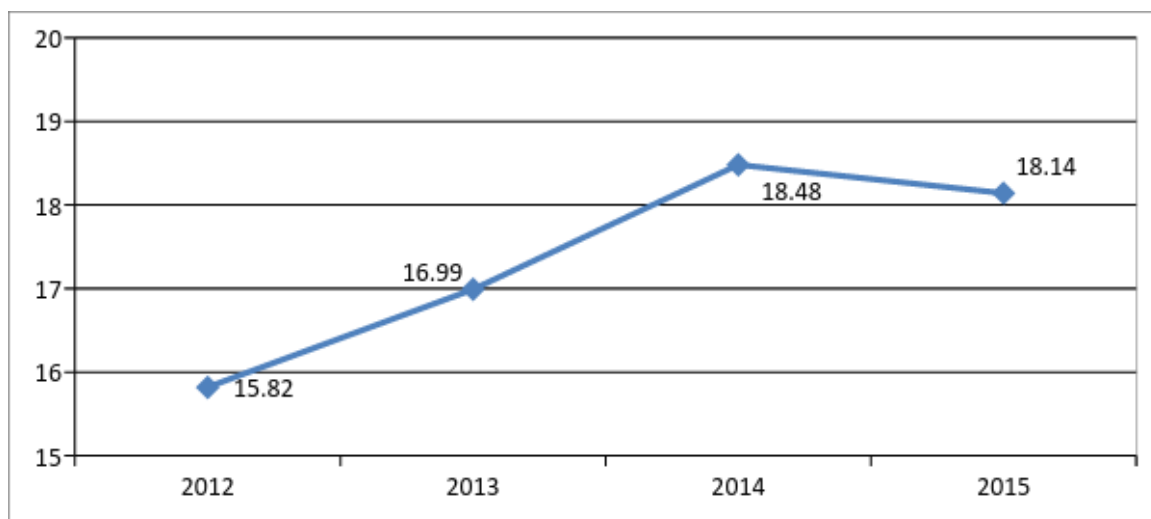


Chart 6. The average selling price of honey in 2012-2015, 1 kg/AZN

Analysis of beekeeping in Azerbaijan shows that prime cost of pure honey is high and it loses to imported honey in the cost competition. Low productivity of bee families results in high cost of produced natural honey. And it can't compete with cheaper honey from abroad. In 2015, honey was imported to the country from 11 countries. The total import share of 4 of the countries (Germany, Turkey, Ukraine, Austria) was 53%. Average import cost of imported pure honey was 1.5-2.5 US Dollar (1.54 – 2.57 AZN⁴) per kg. Import price of the most expensive pure honey from France was 6.71 US Dollar (6.9 AZN).

According to Badraddin Hasratov – Head of Honey House of Gakh district, which prefers more industrial method of honey production and by this achieved success in reducing prime cost of honey, 1 kg of honey costs 4-5 manats. By results of short poll in different regions among owners of acting beekeeping farms, prime cost of pure honey of beekeeping with constant location in Khyzy district is 4-5 AZN, of beekeeping with change of location - 9-10

⁴ In 2015, by the rate of exchange 1 USD was approximately = 1.0261 AZN. statistics bulletin of the Central Bank. 05/2016 www.cbar.az

AZN. Average cost of pure honey in Goygol and Fuzuli (Horadiz) districts is 4-5 manats per kg. It is 6-7 manats – in Dashkesen, Lenkoran, Gabala, Goranboy districts, 8-9 manats – in Shamkir, Gedebe, Absheron, Shamakha, Agsu districts, and 10-11 manats – in Tovuz and Gakh districts.

As it is seen, the prime cost of cheap pure honey (4-5 AZN) is nearly twice more than the cost of imported honey (1.54 – 2.57 AZN). And this reduces capacity of cost competition of the local natural honey.

The main reason of high prime cost of pure honey is very low honey productivity of bees. There is no general statistics base related to the level of honey productivity of bee families in Azerbaijan. The productivity is different depending on regions and bee sorts. To determine a bee family's possibilities of giving honey in different districts, investigators performed a short research, kept contact with beekeeping farms acting in some districts and investigated the level of productivity. It became clear that the level of productivity of honey in beekeeping farms changes within interval of 5-20 kg. While a bee family in Gadabay district gives 5-6 kg, in Tovuz, Shamkir, Absheron, Gakh, Goranboy districts – 7-8 kg, in Salyan, Dashkesen, Lenkoran, Gusar, Shabran, Sheki, Gabala, Shamakhi districts – 9-10 kg, Goygol, Astara districts - 15-20 kg.

The low productivity of bee families in Azerbaijan is emphasized in discussions with bee specialists. According to Galib Abdulaliyev – Head of department of cattle-breeding development of Ministry of Agriculture, a bee family in the country gives approximately 8 kg. Observations and interviews held in some farms show that the rate is higher. According to Tofiq Bayramov – an owner of a private beekeeping farm in Ismayilli district, a bee family he cares of, gives 25-30 kg of honey. Head of Honey House – a large beekeeping farm in Gakh district – Badraddin Hasratov informed that productivity is 20 kg. According to Latif Ginyatoglu – Head of another large farm – Ginyat ogullar in Sheki, the rate is 18-20 kg.

The experience of foreign countries shows that in some countries a bee family's level of giving honey reaches 40-50 kg. (**see:** the *section of foreign experience*)

According to Shamil Guliyev – Head of Union of Azerbaijan Beekeepers, 200 bee families are required at least for normal activity of a farm. If the work is set up correctly, if the regulations are followed, it will be possible to get 4 tons of honey at least per year. The prime cost of the produced pure honey will be 4-5 manats. Depending on climate conditions, the cost may reduce up to 2-3 manats. If one takes the official rate of exchange of Central Bank 1 Dollar = 1.60-1.65 AZN, then pure honey produced in a farm consisting of 200 bee families will cost 2.5-3 Dollar per kg. And this cost may compete from the view of price.

Beekeeping is not only earner, but it is also a sphere supporting steps forward ecological development of the country, to increase employment in regions, and to reduce dependence of the country's economy from oil.

According to Shamil Guliyev – Chairman of Union of Azerbaijan Beekeepers, if 20 million Dollars are invested in development of beekeeping in Azerbaijan, at least 50-60 millions of profit may be made in 6 years. Investment made in the sphere can give profit beginning from the 3rd year. It is possible to increase number of bee families in Azerbaijan from 261 thousands to 600 thousands. In such a case, the number of beekeeping farms may be

significantly increased, and this will help improve social conditions of the families.

Despite the most advantageous climate for development of beekeeping in Azerbaijan is in Aran region, intensive agriculture causes problems for such farms. Spraying of ploughed fields causes poisoning of bees from treated nectar and pollen and their death at end. Agriculture also causes useless impurities in the natural honey. It is impossible to export such honey at all.

The food base for beekeeping in Azerbaijan is provided by flora of lowlands, foothills and mountainous areas. Taking into consideration natural-geographical and climate conditions of our Republic and variety of its flora, it is necessary to provide relocation of bee families for five times per season at least, in order to provide their normal development. The only the relocations create difficulties. Although bee families of large farms are relocated depending on the climate, little farms prefer to stay in one place all year long. Sometimes they even don't conform to the rules of relocation. Or don't pay attention to the distance to be between bee families, or collect in one place bee families in number more than it is required. All this negatively affect productivity and lowers the level of honey production. One more factor preventing from production is that beekeeping is not permitted to woods. Beekeeping has special privileges in the world and they may enter woods. Some countries even prefer to plant new woods (for example, acacia) for development of beekeeping. But there are problems with it in Azerbaijan.

Despite of big demand in pure and high quality honey in Azerbaijan, there are sale problems yet. Fake honey sold in the internal market creates problems to sale of pure honey. Pure honey is sold in retail form. There are no wholesale channels. Retail sale consists of sale at distribution networks, private sale and sale at markets arranged by appropriate government bodies. A little part of beekeeping farms prefer to pack pure honey produced by them and sell it in retail form at distribution networks. Most of beekeepers prefer private sale at their farms. Such a sale is typical for small farms.

With support from the Ministry of Agriculture, honey fair is traditionally organized in the capital city of Baku every year. Despite of the sale conditions created for beekeepers by such fairs, unfortunately, false and bad quality honey which finds way to the fairs causes people not to trust natural honey. There is much false and bad quality honey at the market. Professional beekeepers support tightening of rules of control of pure honey sold in the fair, to prevent such cases. For example, in the result of control performed by State Veterinary Control Service near the Ministry of Agriculture, in Veterinary and Sanitary Examination Laboratories, more than 17 tons of honey and other bee products brought for fair held in Baku from 10 October to 10 November 2015, not meeting quality standards, were removed from the sale after examination in the laboratories⁵.

Bottled honey is used in public catering and tourism objects. While pure honey is served in small bottled form in foreign hotels abroad, in most Azerbaijan hotels – it is submitted to client in open form. And the quality of the honey is in question.

One of mechanisms to support development of beekeeping is that beekeepers should unite in different unities and mobilize their forces. This is important both from the view of delivering

⁵ INFORMATION about works performed in 2015 on fulfilling of “Plan of Measures about Announcement of 2015 as the “Year of Agriculture” in Azerbaijan Republic www.agro.gov.az

systematized problems inside the country to persons making decisions, and also from the view of being represented in international organizations. Despite of some initiatives aimed at uniting forces inside the country, unfortunately, international introducing is not at desired level. Beekeepers acting separately for long years, the recent years show initiative to being organized to make their voices be heard better. And at last, significant part of beekeepers of the country united in Unity of Azerbaijan Beekeepers established in 2008⁶. The main aim of establishing the Unity was first of all to unite different unities acting in Azerbaijan, to provide their joint activity, and at last to establish organization covering the whole beekeeping in the country. The unity is represented in 22 districts.

Besides this, in order to stimulate honey production and increase export potential beginning from February 2016, the Association of Beekeepers was established. As the Association hasn't been registered yet, its launch delays. The Association was established to strengthen communications of Azerbaijan beekeepers on international level, to introduce them to the world. After the Association is registered, it has an aim to become a member of Apimondia – International Federation of Beekeepers' Association. Apimondia has 94 complete, 20 associative members now⁷. We should note with regret that Azerbaijan is not presented by any unity in the international body. Despite "Gyzyl petek" ("Golden honeycombs") social unity presented Azerbaijan before, currently the organization doesn't operate. Almost all countries of former USSR are presented by one or two organizations in the body. And even 6 organizations of neighboring Turkey are members of the Federation. Representation in the body is useful for introduction of Azerbaijan beekeeping industry in the world, to strengthen international connections, to master advanced technologies and apply them in the country.

Beekeepers worry about tendency of bees to degeneration which is observed the recent times. Degeneration of bees negatively affect the productivity. Experts consider the reason to be **connected with chaotic, unsystematic pedigree-selection works**. Galib Abdulaliyev – Head of Department of cattle-breeding development of the Ministry of Agriculture indicates unsystematic pedigree-selection works, performed without consultation as the main reason of degeneration. In his opinion, while according to the legislation, import of bee sorts is permitted only for aim of scientific research, in some cases, beekeepers bring new bee sorts from different countries by personal initiative. And this causes mixing of bee sorts and their degeneration at the end. Badraddin Hasratov – Head of Honey House in Gakh district notes that not performing pedigree-selection works causes degeneration of bees. According to Tofiq Bayramov – private beekeeper in İsmayilli district, if honeycombs are not replaced in time, this may also cause the degeneration. By approach of Chairman of Azerbaijan Beekeepers' Union – Shamil Guliyev⁸, there is a valuable local bee gene pool in Azerbaijan and now the local bee gene pool faces extinction. It is important to perform urgent, systematic, multipurpose selection works in many directions on the local gene pool within the limits of the pedigree-selection program approved by the state. If the selection is performed according to the special state program and covers all bee populations in the same time, then productivity may increase for 45-50 percent. In his opinion, establishment of 10 pedigree and up to 200 specialized modern industrial beekeeping farms is required to protect and improve gene pool of bees.

Experts think that Grey Caucasus and Yellow Iran bees correspond more to climate and

⁶ Official website of the Unity of Azerbaijan Beekeepers <http://ari.org.az/>

⁷ Official web site of the organization - <http://www.apimondia.com/en>

⁸ <http://sia.az/ru/news/economy/348199-samil-quliyev-azerbaycanda-bal-istehsali-chalinin-telabatini-odemir>

fauna of Azerbaijan. Yellow Iran bees are considered to be traditional sort in southern regions, and Gabagtepe bees – in northern regions.

One more factor preventing development of beekeeping is **lack of personnel in beekeeping**. Investigations show that in spite of enough number of beekeeping farms in the country, there is almost no skilled personnel in the sphere. Although owners of the farms have some knowledge of beekeeping sphere, with some exceptions, their activity more consists of amateurs' activity. The conclusion we have come by our observations, after discussions with experts – there is lack in the country of experts both in bee diseases, care of them, and in management of beekeeping farms. Existing educational institutions do not prepare beekeeping staff, there is no specialty of beekeeping. Veterinarians specialized in diseases of animals do not have enough knowledge about diseases of bees. Head of Ginyat ogullar (sons) company from Sheki district - Letif Ginyatoglu thinks that it is important to have a special school of beekeeping. Badraddin Hasratov – Head of Honey House in Gakh district has the same opinion. Representatives of beekeeping farms indicated in interviews that they have to invite a specialist on diseases of bees from abroad. And this causes high cost of service of bees.

There are no required laboratories to check quality of pure honey and analyze diseases of bees. Imported pure honey passes bacteriological, chemical and toxicological, radiological and other examinations in Republic Veterinary Laboratory, and after its suitability for eating is confirmed, it is permitted for sale. In some foreign countries, the flower it is produced from, presence of GMO in its content are determined while analyzing quality of honey. Especially when beekeeping farm is located close to intensive agriculture sowing areas, this causes death of bees, and also affected content of the honey secreted by the bees. And this causes problems for export of such honey.

In recent times, some laboratories related to beekeeping have been established in the country. In 2013, "Beekeeping" laboratory, attached to Azerbaijan Scientific Research Institute of Sericulture, was established. In 2015, "Beekeeping" Center attached to Scientific Research Institute of Cattle-breeding of the Ministry of Agriculture, began its activity in Ganja. Collecting of bee gene pool, organization of pedigree-selection works, artificial insemination, fight against diseases and pests, and also investigations of seeding of plants giving honey – were begun. Despite of all these, laboratory examinations required for beekeeping are performed out of the country, especially in Turkey. Existing laboratories can't determine all problems of beekeeping. Local experts propose to establish laboratories of diseases of bees attached to related higher educational institutions, as a measure of raising efficiency of fight against diseases of bees.

Performed with assistance of FAO, within the limits of "Project of improvement of living of villagers by increasing productivity in beekeeping sphere of Azerbaijan", pure genetic line of Grey Mountain Caucasus bee was determined. Lekit Kotuklu village in Gakh district was appointed as isolated area for breeding queen bee. Apiary of gene pool was created on the basis of private farm and Beekeeping Center in Gakh district. The first generation has been already got this year by artificial insemination. The Ministry of Agriculture indicated that it supported purposeful development of pedigree beekeeping.

Although the state which announced development of beekeeping as priority, created appropriate legal base for that, on one hand, it doesn't give financial support, like they do in

international practice. Financial support of the state mainly consists of soft loans allocated by the National Fund Supporting Business. In spite of annual announcements related to intention of the Fund to allocate soft loans for development of beekeeping, in practice, the volume of the credits allocated in the direction are not at significant level. One can't meet any information in annual reports of the Fund concerning credits allocated for beekeeping, unlike other spheres. Different beekeepers we have talked to, within the limits of the investigation, emphasized that soft loans are required for development of beekeeping farms, but they can't get them. All these shows that may be soft loans are allocated for beekeeping in limited volume, or maybe they are unavailable for all beekeepers. And commercial banks are not interested in allocating credits for beekeeping farms unlike other spheres of agriculture, on the reason of high risk.

There hasn't been a practice in Azerbaijan yet, of allocating subsidy for beekeeping by the state. But soon, a part of beekeeping farms – that are the farms exporting bee products, will get opportunity to use subsidies. A decision has been made that beginning from 2016, subsidies will be allocated for local owners engaged in state exporting. So, with aim of stimulating export in not-oil sector, The President of the country signed Decree 811 dated 1st March 2016, "About additional measures related to stimulating export of not-oil products". According to the Decree, at least 3 (three) percent of export interest will be paid at the expense of the state to persons engaged in export of not-oil products in the country. The Decree came to force on 1 March 2016 and will remain in force till 31 December 2020.

The Cabinet of Ministers will adopt "Regulations of paying export interest to persons engaged in export of not-oil products", "The list of goods nomenclature of foreign economic activity of not-oil products, the export interest will be related to" and "Coefficients of application of export interest to base amount, depending on kind of product". Statutory acts for fulfillment of the Decree haven't been prepared yet. After the Regulations are adopted, it will be determined, if bee products are included in the list of not-oil products, in case they are included in the list, the amount of export interest to be paid will be determined.

Besides this, Fund Stimulating Export and Investments in Azerbaijan (AZPROMO) – joint initiative of the state and private sector, is acting. The main aim of the Fund established by the Ministry of Economy in 2003, is to achieve balanced development of the country's economy both as sector and as region, to attract investments to open new working places within the limits of strategy of reducing poverty in the country and especially in the regions, and to realize events related to stimulation of export abroad from Azerbaijan. AZPROMO regularly analyzes legal regime of export of products and services from Azerbaijan, and it works out, prepares and submits to the state appropriate proposals for improvement of it and business environment. Representatives of AZPROMO act in different countries. Head of AZPROMO - Rufat Mammadov indicates that opportunities of export of pure honey produced in Azerbaijan, have been investigated for long period, and appropriate markets have been looking for. According to him, there is a problem with volume of Azerbaijan honey, that means there is no required number of farms producing natural honey. Because of that, pure honey and other products produced in several farms will be sent to foreign countries under the name of "Azerbaijan brand". Only AZPROMO looks for foreign markets for available products, and the export is weak because of inside problems only.

There is no a separate state program in the sphere of development of beekeeping. Development of beekeeping farms is mentioned only in the context of development of

social-economical development of regions in 3 programs covering the period of 2004-2018, accepted in connection with social-economical development of regions. While there are related programs intended for state support of beekeeping in Kazakhstan, Russia (Tatarstan, Dagestan and other), Georgia, Belarus and other countries. The programs cover problems beginning from financial support of beekeeping farms, up to check of quality of pure honey and support of sale.

In the countries, development of beekeeping is supported financially by international organizations, projects are performed with them. With assistance of Agency of Turkey Cooperation and Development (TIKA), a pedigree farm, which has power to produce 3 thousand of queen bees per year, was established in Azerbaijan. Within the limits of the project "Development of Beekeeping in Azerbaijan" realized by TIKA, 32 districts were covered in 2012-2014, 300 families of villagers got bee families, beehives and other beekeeping equipment as assistance, free of charge, 300 new beekeeping farms were created.

In order to develop beekeeping in Azerbaijan, the project titled "Improvement of village population's living by increase of productivity of beekeeping in Azerbaijan" project has been implemented by the UN Organization of Food and Agriculture (FAO) since 2016.

Within the limits of "Increase of opportunities of employment for communities of selected refugees" project of German Organization of International Cooperation (GIZ), beekeeping farms were establishment and treatment of bee diseases was supported.

Projects realized by international organizations, mainly consisted of technical and financial assistance. Within the limits of the projects, activity was performed in directions of spreading of international practice in Azerbaijan, exchange of experience among beekeepers, improvement of skills and knowledge of beekeepers.

Beekeeping farms of different volumes, acting in the country, are divided into 2 groups by appointment of honey:

- 1. Beekeeping farms created to meet internal demands*
- 2. Beekeeping farms created to get profit*

Farms belonging to the First group produce pure honey directly for consumption of their families, relatives and friends. Such farms are usually small and number of bee families does not exceed 40-50. Owners of small farms usually have habits of hobby. The farms act separately.

Aim of creating farms of the second group is also to get profit. They sell produced honey in retail and wholesale. Number of bee families in such farms may reach 1000.

There is no definite information about current volume of produced honey in Azerbaijan. The State

Committee of Statistics doesn't have definite information about volume of pure honey produced per year. The only information - specific weight of pure honey in retail trade was at degree of 0.08% in 2010-2015. If we consider that cost of the products sold to people from retail distribution network was 25.7 milliard manats in 2015, then we will see that cost of the pure honey sold in the year was 20.6 million manats. Pure honey was sold at markets for approximately 20-25 manats. That means, according to official statistics, consumption of

people was approximately 1000 tons per year. Big volume of pure honey is currently sold out of distribution networks and beekeeping farms prefer direct sale. Chairman of Azerbaijan Beekeepers' Union - Shamil Guliyev thinks that consumption potential of the country per year is within 4500 tons. According to him, by the norms accepted in the world, consumption of honey is 0.45 kg per man and from this point of view Azerbaijan's need is 4500 tons per year. Badraddin Hasratov – Head of Honey House of Gakh district assumes the potential volume of consumption is 4000 tons. But there is no actual information about honey consumption in the country. In general, half of country's need in pure honey (2400 ton) is met by internal production. In 2015, up to 70 tons of pure honey was imported to the country. Import of pure honey doesn't reflect reality. Because honey is brought to the country from Georgia, China and other countries, but it is not registered in the customs. While analyzing available official numbers, we take 250-260 gm of pure honey consumption per man in the year. But beekeepers say that the number is twice more. We may indicate for comparison that pure honey consumption per man in the world practice is 1-1.5 kg per year in countries such as Germany, Turkey, New Zealand, Austria, and changes within 0.5-0.6 kg in countries such as the USA, France, Danish, Canada, Great Britain. In countries such as Pakistan, India, Egypt, Malaysia and Brazil, consumption volume is 0.01-0.12 kg.

The result of investigations performed in the process of preparing the research, interviews with specialists and studying foreign practice show that there are enough suitable opportunities in Azerbaijan for broadening of beekeeping farms. If necessary measures are taken for development of beekeeping, it would be possible not only completely met internal demands, but it would also be possible to export natural honey. But some institutional steps should be taken for that, necessary legislation base should be created.

BEEKEEPING DEVELOPMENT IN THE WORLD

Development of beekeeping is necessary not only from the point of view of healthy food of people. Beekeeping has very significant influence on development of agriculture, and especially cropping. Investigations show that 75% of development of agriculture plants is directly connected with pollination. Pollination by means of beekeeping intensively increases production of food for approximately 250 milliard Dollars on a world scale⁹.

Main organizations engaged in beekeeping problems in the world act under the name of "Apimondia" (World Federation of Beekeeping Association). Currently, there is a scientific-practical group in the organization which investigates problems of the sphere. The central office is located in Italy (Rome) and official site acts. 111 members from 75 countries are presented in the organization¹⁰.

Beekeeping is available in about 150 countries in the world now. But in a little part of the countries, beekeeping reached high stage of its development; both available bee families and production of beekeeping products are concentrated around several countries. One of the main reasons of the situation is natural-climatic conditions. So, in the definite group of countries, geographical climate is not suitable for development of beekeeping. Cold northern countries and countries covered by desert without rich flora belong to this type.

And in some countries, despite of suitable natural environment, lack of formed economical conditions making development of beekeeping possible, especially lack of state policy stimulating development of the sector, lack of propagandistic-stimulating works to increase initiatives of population in the sphere, do not create interest of people to beekeeping.

According to performed investigations, 48 million or 61.5% of more than 78 millions of bee families available now in the world, are the share of 10 countries only. Number of bee families in these countries is like in the 4th table:

Top 10 Countries with the Highest Number of Bee Families¹¹

Table 4

№	Bee Families by Country	Number of Bee Families
1.	India	10 600 000
2.	China	8 947 730
3.	Turkey	6 011 330
4.	Ethiopia	5 130 320
5.	Iran	3 500 000
6.	Russian Federation	3 049 320
7.	Argentina	2 970 000
8.	Tanzania	2 700 000
9.	Kenya	2 510 000
10.	United States	2 491 000

⁹ <http://www.apimondia.com/en>

¹⁰ <http://www.apimondia.com/en>

¹¹ http://samsun.tarim.gov.tr/Belgeler/Yayinlar/Kitaplarimiz/anlasilabilir_aricilik.pdf

World Total	78 202 046
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As it is seen from the Table, countries which are ahead by the number of bee families represent different continents of the world. But among countries of the first ten, the biggest share belongs to the countries in Asia. India which is on the first line according to the number of bee families, has indicators equal to indicators of the last 4 countries of the first ten - Argentina, Tanzania, Kenya and USA.

Concentration of bee families, influence production of beekeeping products and especially honey. Currently, about 1.5 million tons of honey is produced in the world¹². 84% of the volume is the 20 countries' share. A moment drawing attention is that the countries which are ahead by the number of bee families, are not leaders in honey production at all. For example, although India is the first in the world by the number of bee families, it is on the 7th place by the volume of honey production. The main reason is that productivity of bee families is very different in different countries. Or the Ukraine, which is not in the first ten by the number of bee families, but it is on the 4th place in the world by volume of produced honey.

Statistics of World Food Organization shows the countries are below.

Leading 20 Honey Producing Countries in the World
(as of ILO Statistical Yearbook 2012)¹³

Table 5

No	Honey Production by Country	Tonnage
1.	China	436 000.0
2.	Turkey	88 162.0
3.	Argentina	75 500.0
4.	Ukraine	70 134.0
5.	United States	66 720.0
6.	Russian Federation	64898.0
7.	India	61 000.0
8.	Mexico	58 602.0
9.	Iran	48 000.0
10.	Ethiopia	45 905.0
11.	Brazil	33 571.0
12.	Spain	29 735.0
13.	Canada	29 440.0
14.	Tanzania	28 500.0
15.	South Korea	25 000.0
16.	Romania	23 062.0
17.	Angola	23 000.0
18.	Uruguay	20 000.0

¹² <http://www.apiworld.ru/1360226599.html>

¹³ <http://faostat.fao.org/site/339/default.aspx>

19.	Hungary	17 000.0
20.	South Africa	16 000.0
Total production		1 260 200.0

As it is seen from the Table, 1.260 million of about 1.5 million of honey produced in the world, is provided by 20 countries. In its turn, first 5 countries play the main role among the 20 countries, they are China, Turkey, Argentina, Ukraine and the USA. Total honey production in the countries is 730 thousand tons, which is approximately 50% of the world production.

Pure honey – the main product of beekeeping – is currently one of 1239 most significant goods bought and sold by international commercial means at world markets. According to volume of sale, honey was at 730th place in the list of indicated goods in 2015. In 1995, the indicated rate was 760. The fact indicates that consumption of honey in the world gradually expands¹⁴. About 600 thousand tons of honey produced in the world is directed to export by international markets. In general, honey is exported from 150 countries. 460 companies engaged in export-import of honey. Total cost of exported honey was 2.3 milliard Dollars¹⁵. Currently, 90% of world export of honey belongs to the share of 15 main exporters. Annual volume of honey export and average export cost of the countries are shown in the table below:

Top 15 Honey Exporters in the World¹⁶

Table 6

Exporters		Export Size, 1,000 kg	Import Value, \$ 1,000	Export Value per kg 1 kg
1.	China	187301.0	377 818,0	2.0
2.	Argentina	63922.0	229 073,0	3.6
3.	Mexico	42161.0	155 986,0	3.7
4.	India	40829.0	121 662,0	2.9
5.	Vietnam	36095.0	132 974,0	3.7
6.	Spain	30 150.3	101 505,2	3.4
7.	Brazil	22206.0	81 720,0	3.7
8	Hungary	17862.0	79 292,2	4.4
9.	Canada	11979.1	52 116,0	4.3
10	Romania	10863.1	46 020,0	4.2
.				
11	Chile	9887.8	39 317,0	4.0
.				
12	Turkey	7192.4	25 071,6	3.5
.				
13	United States	6460.0	23 696,0	3.7
.				

¹⁴ <http://www.apiworld.ru/1462462603.html>

¹⁵ <http://www.apiworld.ru/1460449678.html>

¹⁶ <http://faostat.fao.org/site/342/default.aspx>

14	Australia	5242.3	34 388,1	6.5
15	Malaysia	3522.0	5 593,0	1.6
Total		465 523.0	1 490 000	3.2

As it is seen from the Table, export volume of China – the biggest exporter, is about 55 times more than Malaysia’s – which is last among 15 countries, and three times more than Argentina’s which is the second after China. Among the countries, average export cost of honey in the 13 exporter countries, except China and Australia, is almost similar – about 3-4 Dollar. It is very cheap in China – 1.6 Dollar, and very expensive in Australia - 6.5 Dollar.

Besides significant increase of production of beekeeping products in the world during the last years, competition at international market also has become more severe. And serious standards have been determined especially for the quality of products. For example, Japan produces only 5% of its internal consumption and 95% of consumption are provided by import. Besides large scale of the market, it is a market with high purchasing power. Simply, any country which intends to enter Japan market, should consider 3 important factors: **(i) there is a big need in light-color honey in the country; (ii) it should be ready for price competition with China - main supplier of the market. For example, 26.4 thousand tons of honey were imported in 2015 from China to Japan, average export cost was 2.2 USD (by current rate of exchange - approximately 3.5 manats); (iii) opportunities to sell bad quality honey at Japan market are limited, so honey production meeting international standards should be provided.**

Despite of all taken measures, there is information that **China** still submits rather large volume of false products. The recent years, the country has been repeatedly exposed to international sanctions for such attempts. For example, in 2002-2004, European Union forbade China to import honey. Presence of antibiotics, especially high rates of residuum of medicines such as streptomycin and tetracycline in content of the honey imported from the country caused that. As China improved quality of honey produced in the country, beginning from 2005, the import ban was gradually withdrawn.

The USA took the same steps against China. But the USA didn’t apply complete import ban, it applied anti dumping duty of 221%. In the result, in 2001-2011, import of honey from China reduced from 17.7 thousand tons up to 1.5 thousand tons. The anti dumping duty was 2.63 USD per kg. Decision about prolongation of tariff obstacle was made again in 2012. That’s right, later China began to realize export by the 3rd countries, India for example. But in 2010, EU forbade export from India, bringing as argument that it was impossible to determine the country of production. Share of countries of America continent increased fast instead. For example, in 2006-2011, Mexico’s share of 27% at the market expanded and raised from 12.4 thousand tons up to 15.7 thousand tons¹⁷.

At the same time, China keeps leading position in development of beekeeping sector. In the country, 9 million of bee families give 450 thousand tons of honey, 4 thousand tons of bee milk, 350 tons of propolis¹⁸.

¹⁷ <http://www.apiworld.ru/1360226599.html>

¹⁸ <http://www.apiworld.ru/1330345799.html>

Experts think that although China gives in first to Russia in ergonomic possibilities, its current actual possibilities of production are incomparably more than in Russia. The reason is wide state support. State program on development of beekeeping was accepted in China in 2011-2016. The aim of the program is to reach the number 10 million of bee families (now it's 8.6 million), 500 thousand tons of honey production (now it is 450 thousand tons).

Beekeeping brings more than 40 milliard Dollars profit in economy of China. In the country, 0.72 bee family corresponds to 1 sq. kilometer. The rate is 18.8 – in Korea, 5.1 – in Turkey. Productivity of beekeeping sector in China is rather high, each bee family gives more than 40 kg of honey¹⁹.

China produces 95% of bee milk produced in the world. Beginning from 1958, Scientific Research Institute of Beekeeping attached to Academy of Science on Agriculture, plays an important role in development of the sector in China. The Institute is in close cooperation with the special Center of China Ministry of Agriculture, responsible for development of beekeeping. The Research Institute has 97 scientific achievements, 57 patents, publishes "Beekeeping of China" magazine. Besides that, Association of China Beekeeping operates; it unites 3000 specialists and scientists on beekeeping, business men working in the sector in the country. There are training and specialization centers on beekeeping, special beekeeping schools attached to the Association. In addition to that, currently 7 universities in China perform investigations related to beekeeping sphere and have appropriate specialties.

Turkey is on the 2nd place, after China, by volume of produces honey. The volume of produced honey reaches 95 thousand tons per year. About 10 thousand tons of it are exported, the rest – satisfy internal need. Number of bee families in the country is about 6.6 million. Each bee family gives on average 15-16 kg. There are about 80 thousand beekeepers in the country. There are mechanisms of state support of beekeeping sector in Turkey. For example, beekeeping farms breeding queen bee, get 4 lira support per queen bee. But the main requirement here is the permission required from Turkey Unity of Beekeepers for breeding a queen bee. Application of the supporting program has been started since 2003. And beginning from 2013, beekeepers get 8 lira per bee family, and those who engaged in organic beekeeping get 5 lira subsidy in addition. But there is a requirement of registering bees in the state registration system, to get the support from the state. Another support is connected with technological support. There are programs supporting purchase of required machines and equipment for modernization of production, storing and processing of honey and other bee products in companies, provision of consultation service required for technical-economic basic works. For this purpose, the organizations gives support, paying 50% of the expenses up to 250 000 euro. In addition to this, beekeepers who want to keep 20 bee families at least, or just begin the business, may get 4-year credit if they don't have private funds. The credit isn't paid the first year, then it is paid in parts: the second year - 20%, the third year - 35%, and last one - 45%. The credit is given by Head Office of wood-village relations. And Ziraat Bank gives 50% discount for credit taken by beekeepers who want to increase number of bee families more than 50. Beekeepers can take credits from banks for 5% per year. Beekeepers are also organized at high level in Turkey. There are 79 beekeeping unities in the country, and they have more than 52 thousands members. The expense level is very important for increase of productivity of beekeeping and durability of the sector. Expenses are the most important factor of increase of productivity and durability in beekeeping activity. The main expenses for production of honey – the main product of

¹⁹ <http://www.apiworld.ru/1463774718.html>

beekeeping activity, are the following: sugar, medicines, water and transportation costs, cost for labor power involved from the outside, expenses for means for filtration and bottling of honey. In Turkey, wholesale price of honey is 18.3 lira per kg (it's about 6.3 Dollar), retail sale price is 29.2 lira (10 Dollar). Despite of large volume of honey production in Turkey, products of the sector give only 2% of the total value of animal products²⁰.

Investigations in the direction of economic productivity of beekeeping sector are performed regularly in Turkey. Investigations of the last years showed up the following moments as main problems of beekeeping sector and especially export of honey in Turkey:

- **Use of naphthalene for protection of honeycombs,**
- **Use of sugar syrup and starch containing substances even in the period of plenty of bee nectar flora,**
- **Residuum appeared in the result of excessive use of antibiotics against pests and diseases,**
- **Classification of honey according to the plants it has been collected from,**
- **False honey brought to market,**
- **Lack of enough information about fight against pests and bee diseases,**
- **Big transportation expenses in resettlement beekeeping,**

During the last years, in 2013-2017, a program was accepted related to enlarging woods giving much honey, which was a step drawing attention, took in direction of development of state sector in Turkey. The list indicating honey potential of flora in countries of the world having potential in the sphere of honey production, is being prepared. Plants having the least honey giving potential belong to the 1st class, and having the highest honey giving potential – to the 6th class. The honey giving potential is measured by the mass of nectar, bees can collect from 1 hectare.

- **Plants with capacity of 5-25 kg nectar per hectare– 1st class**
- **Plants with capacity of 26-50 kg nectar per hectare – 2nd class**
- **Plants with capacity of 51-100 kg nectar per hectare – 3rd class**
- **Plants with capacity of 101-200 kg nectar per hectare – 4th class**
- **Plants with capacity of 201-500 kg nectar per hectare – 5th class**
- **Plants with capacity of more than 500 kg nectar per hectare – 6th class**

According to the program, maps covering honey giving potential of all regions and active period of blossoming. It is indicated in the document that one can meet in Turkey 75% of plants available in the world. 25% of honey produced in Turkey is collected from pine, and 75% - from different forest trees such as acacia, chestnut, lime, different forest flowers and wild pear. 85% of honey collected in Turkey in wood areas, 15% - from fruit gardens, dense plains, lawns²¹.

Chile is one of the countries, which have gained success in the world during the last years, by development of beekeeping sector. The country distinguishes not only by high potential of honey export, but also by initiatives in the direction of broadening inside consumption. In July 2014, Chile National Congress (Parliament) made decision about entering pure honey in pupils' diet. Deputies submitting the project in the Parliament announced that the step

²⁰ http://journal.tarekoder.org/archive/2014/2014_02_05.pdf

²¹ [http://www.ogm.gov.tr/ekutuphane/Yayinlar/Bal%20Orman%C4%B1%20Eylem%20Plan%C4%B1%20\(2013-17\).pdf](http://www.ogm.gov.tr/ekutuphane/Yayinlar/Bal%20Orman%C4%B1%20Eylem%20Plan%C4%B1%20(2013-17).pdf)

would help health of children and teenagers, would reduce level of sugar consumption of them, would broaden market of honey sale in the country. Currently 11 thousand tons of honey is produced in the country, and 85% of it is exported. The main share of export and production belongs to beekeeping cooperatives. "Apicoop" is the biggest cooperative established at the end of 80's. The cooperative unites 350 beekeeping farms in it. The cooperative has its own plant processing honey, company producing chocolate, required techniques (equipment) and staff of veterinarians and specialized experts.

In total 1500 beekeeping farms have been registered in Chile. But investigators indicate that if nor registered farms are taken into consideration, the total number will be 4000. 90% of the farms has 100 bee families, 4% - more than 1000 bee families, about 6% - has bee families in the range of 100-1000. Unity of Beekeeping is well organized in Chile. National Federation of Beekeepers (Federación Red Apícola Nacional) plays casting role in the sphere. The Federation has close cooperation with unities of agricultural seed growers and unities of fruit exporters. In addition to that, Association of Honey Exporters, cooperatives engaged in bee therapy, federation of beekeeping cooperatives act in the country. National Office of Beekeeping connects private sector and state organs. The organization has its departments in all regions. Thank to the organization, the Ministry of Agriculture has constant dialogue with beekeepers. Seven universities learn and study problems of beekeeping in the country and perform scientific investigations in the sphere.

Investigations show that 60% of honey sold at internal market of Chile is realized in distribution networks, and 40% - by informal channels²².

In recent years, some significant initiatives connected with development of beekeeping has been advanced officially in the country. For example, restriction of use of pesticides which are harmful for health of bees, extension of propagation connected with development of beekeeping, expansion of natural reserve areas, planting flora giving honey which is suitable for the region according to geographical and climate conditions, construction of special places to meet bees' need in clean water are among the initiatives.

Among 28 member-countries of EU, **Spain** is the leader by development of national beekeeping. Spain has 17.6% of all 14 millions of bee families have been registered in EU. Number of beekeepers reaches 26 thousand. While EU has 27 thousand skilled beekeepers, and 40% of them are in Spain²³.

France is a country with well developed beekeeping. The country is considered to be one of the biggest honey producers of Europe. There are many research and training centers related to beekeeping acting in the country. By development of beekeeping, National Center (CNDA), National Federation of Organizations Protecting Health of Bees (FNOSAD) and Association of Development of Beekeeping (ADA) are included here.

There are approximately 69 000 beekeepers. Among them, 91% - are very small farms (beekeepers have less than 30 bee families), 6% - small farms (beekeepers having bee families in the range of 31-150 bee families). Usually, owner of a farm having more than 300 bee families is considered to be amateur beekeeper. From this point of view, 97% of farms in France are amateurs. Only 3% farms are involved in industrial beekeeping. 45% of all bee

²³ <http://www.apiworld.ru/1435702235.html>

²² <http://www.apiworld.ru/1454086342.html>

families, 50% of commodity honey belong just to the 3% of the industrial beekeepers which have 1.2 million of bee families. Unities of beekeepers significantly influence politics of the state. For example, at the end of 90's of the last century, under their pressure, the state forbade application of pesticides and herbicides causing death of bees. Internal honey production is about 40 thousand tons, and export – about 20 thousand tons. 75% of Frenchmen regularly consume honey, and annual consumption is about 600 gm.

The biggest problem in France is high prime cost of honey. France honey is indicated in the list of most expensive honey of the world. The situation of honey cost is as follows: the cheapest honey is Asia's one, especially China honey. Honey from China is the cheapest one, and it is called "base cost"; honey of Southern America – is 20% higher than the base cost; honey of EU – is 10-15% more expensive than honey of Southern America; honey of Spain – is 10-15% more expensive than average European cost; honey of France and Italy – 20% more expensive than Spanish honey. There are 70 thousand beekeepers, 1.3 million bee families in France²⁴.

In the last ten years, beekeeping sector of some eastern European countries has taken steps forward significant development of beekeeping sector. For example, about 15 thousand beekeepers operate in **Hungary** which has approximately 93 thousand sq. kilometers of area. There are more than 600 thousand bee families; average productivity of each bee family is 25 kg commodity honey. The country has 10 bee families per its sq. kilometer. About 30 thousand tons of honey is produced, and about 50% of it is acacia honey. Half of ready bee products are sent to internal market, and half – to export. 7% of beekeepers are professional beekeepers who have more than 150 bee families. There are 126 regional associations of beekeeping in the country, they have 11 thousand members. 90% of commodity honey is produced by beekeeping farms – the members of the association. Opinion of the association is taken as basis in distribution and control of using of subsidy of 3 million euro, allocated by the state to beekeepers for a year²⁵. State support is not limited by subsidy only. There is also a system of state support for buying equipment and technologies used in farms. That's an advantage of Hungary – it has status of "country without GMO". The annual turnover of beekeeping industry is more than 65 million euro. Average profit of a bee family is about 100 euro. According to the Ministry of Agriculture, the main problem is high density of bee families. Each hectare of areas used for beekeeping corresponds to 12 bee families. By the rate, it lags behind only Greece²⁶.

Farms having more than 150 bee families are considered professional (industrial base) in **Poland**. 307 large beekeeping farms of the country have more than 80 thousands bee families. Average number of bee families in industrial beekeeping is 267. Poland produces more than 17 thousand tons of honey, 6 thousands of it are exported. Prime cost of a bee family is currently about 80 euro. It includes expenses of buying ready sold honeycombs and beehives, fuel and energy expenses, buying sugar. If expenses on labor power also considered, it is important that average cost of honey to be higher than 4-5 euro, and productivity of a bee family - more than 25 kg. Otherwise, beekeeping won't be a profitable sector in Poland. And the level of prices decreases competitiveness of beekeeping of Poland²⁷.

²⁴ <http://www.apeworld.ru/1365582496.html>

²⁵ <http://www.apeworld.ru/1361781033.html>

²⁶ <http://www.apeworld.ru/1413817866.html>

²⁷ <http://www.apeworld.ru/1381730630.html>

State program supporting beekeeping has been held in **Bulgaria** and during the 3 years, within the program, 7 million euro has been paid in the form of subsidy to about 100 beekeepers. Minimal amount of subsidy paid for a bee family was 30 euro. Honey production in the country is approximately 10 thousand tons. In the same time, as profitable market opportunities for the products are not found, the level of price which will give possibility of high quality and sustaining competition, is not got, many beekeeping farms became insolvent. In 2007-2013, number of beekeepers from 35 thousand reached 19 thousand, number of bee families reduced from 750 thousand to 500 thousand. The level of loss of bee families reached 20%. The main reason which let farms be profitable and competitive was opportunity to move from amateur beekeeping²⁸ to professional (industrial) beekeeping. Only 2-3% of farms had more than 100 bee families²⁸.

Interest to beekeeping has significantly increased, in Georgia in recent years, neighbor of Azerbaijan and much work on the state level has been done for development of the sphere. In 2004-2014, honey production increased more than twice in Georgia and reached 4.1 thousand tons. But the local production is sent to internal market yet. In 2014, volume of 5 tons at the price of 54 thousand Dollars was exported. The following is the main obstacles for honey export: prime cost is high and export price becomes expensive. Currently, there are no farms in Georgia engaged in professional and industrial beekeeping. All beekeepers are amateurs and they all have less than 300 bee families. Usually such farms don't have resources for expansion and technological renewal. According to experts' calculations, to set up a beekeeping farm having 300 bee families, capital of approximately 120 thousand laris (50 thousand USD) is required. And it will take 4 years at least to return the capital. And Georgia will have to give full guarantee for its products about absence of antibiotics, pesticides and other pollutants, to export honey. In order to determine exact beekeeping potential of the country, MA completed registration of all beekeeping farms till the end of 2015. As there are no laboratories required for analyses of antibiotics and pesticides, even the analyses are performed abroad. If the required quality standards are applied, joining of Georgia to the Agreement about Free Trade Zone gives opportunity to export 1.5 thousand tons of honey at the first stage to EU²⁹. Honey export is expected to be possible since 2016. State Agency of Development of Georgia Agricultural Cooperatives has taken steps stimulating beekeepers to unite in cooperatives. And in the result, currently there are 164 beekeeping cooperatives in the country, and 80 of them are located in highlands. To establish a cooperative, at least 3 farmers should participate in founding the organization as shareholders. MA provides necessary stock and equipment for the cooperatives, expenses for laboratory analyses are paid by government³⁰.

According to information given by Society of Georgia Professional Beekeepers, there is more honey export by means of informal channels in Georgia. That's right, it is difficult to enter Turkish market. Because they require Certificate of meeting EU standards. But it is more profitable and without obstacles to deliver it to Azerbaijan by passenger buses. There is a state program for development of beekeeping in Georgia³¹.

For specialists, the level of honey production per person is a major factor affecting the current development of beekeeping in the country. The internal market capacity jointly with

²⁸ <http://www.apeworld.ru/1383278054.html>

²⁹ <http://www.apeworld.ru/1455903303.html>

³⁰ <http://www.apeworld.ru/1441886703.html>

³¹ <http://www.apeworld.ru/1357711877.html>

the export capacity plays key role in shaping the level of production. In countries where the honey's portion is high in food ration, the beekeeping farms firstly target to meet the internal market demands. Investigations based on the statistics of the World Food Organization states that the average output indicator of honey per person sharply differs as per countries. Germany, Sweden, Austria, New Zealand, Greece and Turkey have the biggest indicator. In these countries the level of yearly average of honey production is between 1000-1500gr per person. This figure is between 660-670gram in Spain, Austria, Portuguese and Sweden; 550-590gram in the USA, France, Canada, Denmark and Great Britain; 220-270gram in Kuwait, China and Saudi Arabia; and 100-120gram in Pakistan, India and Brazil³².

Recent years, in some African countries, especially in **Tanzania** beekeeping is becoming widely developing. Tanzania has great beekeeping potentials. Tanzania has a vast geography and warm climate suitable for both beekeeping practices. The green belt (forests) in 38,5 million hectares is useful for beekeeping. Almost 2 million people work in the beekeeping sector. The annual honey production is 9380 tons. However, this production is used only for the domestic consumption. In total, Azerbaijan exported 550 tons of honey. The price per kilogram of honey in rural-urban places ranges between US 1.5-2.5, and US 2.7-4.5, respectively. The national honey standards were prepared on EU standards. Every year, the Azerbaijan government initiates a training program to train beekeepers. The quality of honey exporting from Germany is tested at labs³³.

Analyzing the experience of various countries, we can more clearly assess the points of concern that hinder beekeeping development globally. As a main problem, we can state the mass perish of bee-families. In the USA, Argentina and several European countries annually in average 30-45% of bee-families die. Many factors play great role in this process, especially a high pesticide use due to which plants' toxic nectars and pollens can be poisonous for bees. Additionally, the use of highly affecting herbicides in cultivation causes plant destruction.

Another problem is the productivity of the sector. Volume of honey per a bee family is sharply differ as per countries, and can be clearly seen in the table below:

World Honey Yield (per honey-bee colony)³⁴

Table 7

No	Honey Production by Country	
1.	Canada	57,5
2.	Australia	51,2
3.	China	49,9
4.	Mexico	31,3
5.	United States	26,9
6.	Argentina	19,9
7.	Russian Federation	19,7
8.	France	19,5

³² <http://www.apiworld.ru/1374468155.html>

³³ <http://www.apiworld.ru/1379395585.html>

³⁴ <http://carsiv.atauni.edu.tr/xmlui/bitstream/handle/123456789/1086/10058852.pdf?sequence=1>

9.	Turkey	1,7
10.	South Africa	15,7
11.	Spain	14,0
12.	Iran	13,4
13.	Greece	10,7
14.	Poland	9.4
15.	Germany	4.1

As the table shows, in the most productive countries in beekeeping sector, such as in Canada and Australia volume of honey per a bee family is 6-15 times higher than in Germany and Poland.

The third problem is the produce of artificial honey and expanding to markets. China is the world's biggest producer of artificial honey. Today, labs equipped with the highest modern technologies are unable to distinguish whether the honey produced in China is artificial. Therefore, China is the exporter of the cheapest honey to the world market. Consequently, the honey of high quality taken to markets from other countries were sold on a cheap price. So, recent years the international standards on the quality of honey became sharper. According to the existing standards the colour, the taste of the honey, proportion of glucose and fructose, quantity of water were taken as the main factors of the standard. However, currently, the main criteria for honey are absence of pesticides, veterinary medicines, radionuclides, genetically modified substances in plants and remnants of other toxic ingredients. There are certain countries where antibiotics are not used at all. For example, antibiotics haven't been found in the honey produced in New Zealand for last 20 years. As the quality standards become sharper in the world market, consequently, the prices for analyses grow up, and all these factors create additional problems for the beekeeping farms, increasing their expenses. For instance, in European countries analysis of newly modified pollen in honey costs 200Euro. One more example, the cost of a lab conducting biological analyses of honey and testifying its compliance with the international standards is almost US1,000 000³⁵. As far as is known, to establish such a lab is beyond the beekeeping farms' power and governments should undertake this task.

Productivity in beekeeping is a necessary factor for competition capacity, as well. Over the last years, researchers try to identify the competition capacity index of beekeeping sector on the bases of various criteria. These criteria include: price of the bee products; portion and quality of bee products in the world market; proportion of export volume to production volume. According to the competition capacity, Argentina is at the top of the list, China runs second. Argentina produces high quality honey, and exports 94% of honey production, as well. This indicator in China is 49%, and in Turkey – 7%. Another factor affecting and limiting the competition capacity³⁵ is the low productivity. In addition, Turkey is not among a top ten on the export of honey³⁵.

One more factor affecting the competition capacity in beekeeping sector is the natural surroundings, especially the existence of the vegetation that considered as main potentiality for honey production. There are more than 10.000 species affecting high honey production

³⁵ http://kudaka.org.tr/apb/tarim_raporlari/tra1_bolgesi_ari_aricilik_urunleri_sektoru_strateji_dokumani.pdf

in Turkey, and this indicator is viewed as a very high indicator globally³⁶.

Finally, the price of the honey is a serious factor affecting its competition capacity. For instance, the average honey price in Turkey is 203 times higher than in giant honey producing countries as China, Argentina, the USA, Ukraine, Brazil, Hungary, Russia and India. In Turkey, the price for a kilogram of honey is more than US\$6.5 in all wholesale trade points. But in the listed above countries the price ranges between US\$1.5-3.5. Therefore, Turkey does not have a competitive advantage in the price competition with the competing countries. In EU 80% of produced honey is directly allocated for domestic use, and the 20% is allocated to cover the needs of the food industry.

The National Honey Board (NHB), USA reported that the wholesale price of a kilogram of honey in the country is US\$3.2, the sell-out price – US\$11.7³⁷.

Reviewing the list of honey producing and exporting countries with favorable possibilities, making researches on the market demands of those countries is very helpful to find out ways to enter the export market.

Top 15 Honey Importers in the World³⁸

Table 8

	Importers	Import Size, 1,000 kg	Import Value, \$ 1,000	Import Value per kg 1 kg
1.	USA	52835.0	200 246.0	\$ 3.8
2.	Germany	40100.0	151 069.3	\$ 3.8
3.	United Kingdom	37107.1	94 037.0	\$ 2.5
4.	Japan	34170.3	95 805.4	\$ 2.8
5.	Belgium	30702.3	80 187.2	\$ 2.6
6.	Spain	21387.0	55 759.5	\$ 2.6
7.	France	21289.3	82 922.0	\$ 3.9
8.	Italy	16738.0	59 082.1	\$ 3.5
9.	Poland	12637.4	32 331.0	\$ 2.6
10	Netherlands	12338.0	40 373.4	\$ 3.3
.				
11	Saudi Arabia	7651.3	41 616.4	\$ 5.4
.				
12	Austria	5490.0	23 928.1	\$ 4.3
.				
13	Switzerland	4306.0	18 986.4	\$ 4.4
.				
14	Malaysia	3181.8	14 490.2	\$ 4.5
.				
15	Indonesia	1721.0	9 082.0	\$ 5.3
.				
	Total	301 655.0	1 015 000	\$ 3.4

³⁶ http://kudaka.org.tr/apb/tarim_raporlari/tra1_bolgesi_ari_aricilik_urunleri_sektoru_strateji_dokumani.pdf

³⁷ <http://www.tepge.gov.tr/Dosyalar/Yayinlar/d7f9a8235bf54fc799dbc9bad3e3ad8d.pdf>

³⁸ <http://faostat.fao.org/site/342/default.aspx>

The lion's share of sold honey through the international markets in the world falls on 5 countries – the United States, Germany, Japan, United Kingdom and Belgium. Although France and Spain are the biggest honey producing states, but they are not able to meet the needs of the internal market, therefore they are among the big world importing countries, as well.

STRENGTHS AND WEAKNESSES, THE OPPORTUNITIES AND THREATS ANALYSES OF THE BEE-KEEPING SECTOR IN AZERBAIJAN

Realization of economic potential of a given sector in economy directly depends on capacity competition ensuring of that sector. The capacity competition of the sector in both the internal and foreign markets is measured by capacity of offering cheaper and more qualified products in comparison to competitors. Bee-keeping sector in Azerbaijan To evaluate the economic perspectives and capacity competition in bee-keeping sector in Azerbaijan as an optimal approach - strengths and weaknesses, the opportunities and threats analyses (SWOT) were conducted. The outcomes of these analyses are:

Strengths:

- favorable climate for the development of bee-keeping in all economic regions of Azerbaijan (except the Baku economic region);
- Azerbaijan has necessary organic conditions, as well as wide and big variety of vegetation cover for honey producing;
- Possibility of beekeeping farms formation with less expenses;
- Availability of great number of people interested in beekeeping;

Weaknesses:

- Absence of educated beekeepers; not the professionals but mainly volunteers are dealing with beekeeping;
- Absence of specialized institutions dealing with packing of beekeeping products;
- Absence of centers with professionals and scientific potentials growing mother bee breeding;
- Beekeepers act here and there;
- Beekeeping farms are small in size;
- Beekeeping farms' are unable to produce honey industrially (on industrial bases.)
- Beekeeping associations/units in country are not well and completely established; they don't have representatives at international beekeeping organizations;
- Beekeeping farms are unable to conduct selective breeding activities.

Possibilities

- The 10 economic regions, excluding the Baku economic region, have favorable climate condition for beekeeping development;
 - Azerbaijan has the necessary organic terms, and wide and rich vegetation cover for honey producing;
- The Government has included The agricultural sector to the list of non-oil economic priorities;
- The internal demand/need for the qualitative honey is high in the country;
- The Government had taken steps making substantial efforts for beekeeping development;
- Azerbaijan experienced the export subsidies for the stimulation of non-oil exportation, including the honey export;
- International organizations realizing projects on improvement of beekeepers' skills and

abilities function in the country;

→ Existence of free and cheap labor forces in beekeeping sector;

→ Existence of skilled and experienced beekeepers in apiculture, and possibilities to disseminate their knowledge and skills;

→ There are favorable economic possibilities for honey producing that can compete with world market price;

→ Azerbaijan historically has beekeeping traditions.

Threats:

→ The climate changes (intensification of rains, streams, flood and cyclones worsens the natural conditions for beekeeping;

→ As the mechanisms prohibiting the coming of false honey to markets are weak, the price for qualitative honey is not favorable from economic view;

→ The credit conditions are too heavy for entrepreneurs; absence of startup credit system;

→ Non-formal channels in beekeeping products trade prevail; the channels preferring trade/commerce on contract bases are limited;

→ Non-existence of a health industry in the country that use the beekeeping production as goods;

→ The use of the beekeeping production in food industry is over limited;

→ Extension of husbandry (cotton and grain growing, etc.) recent years;

→ Import of foreign bee species to the country without control;

→ Import of medicine on bee illnesses to the country without control; Non-existence of bee forage plant maps on regions;

→ Non-existence of a map on favorable spaces for the development of migrant bees on regions;

→ Non-existence of labs on honey analyses in the regions;

→ Non-existence of labs analyzing the pesticides and remnants of other toxics in the honey, including nectars in plants with genetically modified organism (GMO) in the regions;

→ Limitedness of scientific study relating to beekeeping and honey production;

→ Limitedness of information on beekeeping production branding;

→ Non-existence of standards on beekeeping productions except honey;

→ Limitedness of information on beekeeping production with beekeepers except honey;

→ Dissemination of inflectional diseases due to the honey bees' colonies;

→ Non-existence of higher education on beekeeping and scientific research institutions;

→ Non-existence of necessary infrastructure for the beekeeping development;

→ Safety inspection of vegetative and animal protecting means imported to the country against the bees and other members of flora and fauna is not checked.

CONCLUSIONS AND RECOMMENDATIONS

Beekeeping farm is an important field non-oil sector and agrarian sector to be developed. Development of beekeeping industry has enough positive aspects: it contributes to the fauna; protects the ecology (environment); produces kwyl'vi ; protects the health of inhabitants, etc. Beekeeping is important from social point of view, as it promotes the development of regions, the increase of the occupational level and income of population. Additionally, export of bee productions is an important source of earning a country foreign exchange.

As it is experienced, beekeeping farms improve the productivity of buckwheat fields for 35-50%, sunflower for 25-40%, fruit and berries for 30-50%, lucerne for 200-300%. Bees provide the plants' pollination. Pure honey contains a high calorie, and it is a dietetic food and it has a feature of 'healing men'.

There is enough potentiality and conditions for the development of beekeeping in Azerbaijan. Our country has historical traditions in beekeeping. Researchers conducted a series of research activities and came to certain conclusions:

- The climate and vegetative cover of Azerbaijan are favorable for the development of beekeeping;
- Beekeeping is presented by amateur beekeepers in Azerbaijan that caused the followings: there is no transition from the old beekeeping to the professional and industrial beekeeping; selective breeding activities are not conducted and the local bee gene pool is lost; the degeneration of bees happened; bee productivity decreased; bee products rise in price;
- Beekeeping is lack of professional personnel, and there is no educational institutions dealing with beekeeping;
- The local pure honey production doesn't meet the consumers' demand;
- There is a great need in normative acts and new standards on the beekeeping development.

The research revealed that the pure honey - the main beekeeping product has a lower competitive capacity. As the honey is not industrially produced and beekeepers are mainly amateurs and the bees' productivity is low, then the price of the pure honey becomes expensive and the volume of honey to be exported becomes limited.

On one hand, as the exported honey is sold cheaper it ousted the local honey from the market, on other hand, the high cost of the local honey implies difficulties in finding foreign markets. For instance, the price of the imported pure honey in 2015 averagely was US2,7 per kilogram, but the price of the exported honey per kilogram was US11.2. As we see, the import price is 4 times cheaper than the export price, and it indicates that the local honey goes on to lose in price competition.

In 15 leading honey producing countries in the world the average export price per kilogram is US2,3, but in Azerbaijan depending on the regions the cost of a kilogram of the pure honey ranges between US2,5-6. For instance, in Goy-Gol and Fizuli (Horadiz) districts, a kilogram of pure honey is averagely US2.5-4; in Dashkasan, Lankaran, Gabala and Goranboy districts – US 3.8-4.4; in Shamkir, Gadabey, Absheron, Shamakhi and Aghsu districts – US5-5.7. The national currency has fallen against dollar over recent months, therefore the imported honey rose in price and its competitive capacity reduced, but the export capacity of the local pure honey became stronger.

In order to develop the beekeeping, the state's support is important. This support should be continuous and for a long term. As seen from the foreign experience, it is impossible to develop this field without the state support. The leading foreign experience could be applied in Azerbaijan; especially the experience of Turkey is more admissible for us. The Turkish

Government allocates subsidies to beekeeping farms in an amount of 4 lira to each mother bee, 8 lira for a bee family, and 5 lira to beekeepers dealing with organic beekeeping. Advanced training courses on beekeeping are held at the Association, and special beekeeping schools are organized. The In 2014, Chile's Government issued an order on including the pure honey in the schoolchildren's ration. There are sectorial development state programs supporting the development of apiculture in Kazakhstan, Russia, Georgia, Belarus and other countries.

Facing with problems in apiculture, the Azerbaijani beekeepers usually consult the Turkish colleagues. Our beekeepers benefit from the labs, scientific-technical institutions and human resources on related sector. The Turkish Cooperation and Coordination Agency (TIKA), the German Federal Enterprise for International Cooperation (GIZ) and The Food and Agriculture Organization of the United Nations realizes projects for beekeepers on technical assistance.

The suggested activities for the development of beekeeping in Azerbaijan are the followings:

→ to approve and realize the State Program on Development of Beekeeping for 2017-2021 on establishing state support mechanisms for the development of beekeeping farms, increase of the bee production volume and strengthening the export potentials, including strengthening the human resources and material and technical basis in beekeeping;

→ to allocate subsidies from the state budget for the improvement of the competition capacity of beekeeping productions at beekeeping farms and for the stimulation of the local beekeeping development;

→ to conduct a single state registry on bees for allocation a rational state support;

→ to create mechanisms for allocation of credits with low-rate term loan for ensuring beekeepers' access to cheap financial resources;

→ to include the pure honey in food ration under the Decree of the Cabinet of Ministers of the Republic of Azerbaijan for insuring the high-energy foods for inhabitants, schoolchildren and military personnel and for stimulation of new production;

→ to establish labs on bee diseases serving to protect bee families from mass perish and to grow healthy bees;

→ to establish faculty on bee specialties and train specialists on beekeeping at higher educational institutions (e.g., at Azerbaijan State Agrarian University (ASAU) aiming to ensure the beekeeping industry with professional personnel (on management and specialists on bee diseases);

→ to plant vegetables rich in nectars and have a large plantation of these vegetables for the improvement of the honey bees' productivity;

→ to create selective breeding and specialized experimental-testing farms in the regions of the country with a centralized center for the protection of bee gene pool, and the state to ensure the allocation of special plot of lands (areas) for this purpose;

→ to prepare national standards on quality of separate species of bee products, their packing, storing, transportation and purchase, as well;

→ to establish the beekeepers' unions, and to provide them with the state's technical support;

→ to strengthen the Azerbaijani beekeepers' international relations, to achieve their

recognition worldwide; to achieve the membership of Apimondia - International Federation of Beekeepers' Association through which to master the leading technologies and introduce them to the local beekeepers.