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Original article

Ipard Supported Beekeeping Businesses' Socio-economical Structure and Problems: A Case Study of Van

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Abstract

In this study, IPARD (Instrument for Precession on Agricultural and Rural Development) promoted businesses are examined in Van province based on investments on agricultural businesses to restructure and upgrade to community standards. The aim of this study is to determine not only whether IPARD programme has led the businesses modernization or improved the number of the enterprises but also defining the problems by examining the business managers' socioeconomically statuses and therefore suggesting solutions, in Van Province, holds an important place in honey production throughout Turkey. The study was conducted on full count method of 94 businesses through filled questionnaires based on 2016's production data. The mean age of the business managers is 36,4 and men/women percentage is 79% to 21 % respectively. 43% of the managers are found to live on by just beekeeping, while 57% has off-farm income. Examined businesses owners' questionnaires showed 71% are pleased to do beekeeping and the rest not. Government supported businesses percentage is 19, while 89% is not supported by the government. When the educational level is examined 69% of the businesses had had some education about beekeeping, while 31% had not had any.

Keywords: Beekeeping, Socio-economic structure, Honey, Ipard, Van.

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INTRODUCTION

Agriculture is a sector, which has different features from economic, social, political and technical and has indispensable importance. The fact that agricultural products are the necessities has given these products a strategic importance. All countries in their agricultural products; especially in basic agricultural products such as grain, sugar, milk, meat and vegetable oil, and are directing their agricultural policies towards this goal. In our age, the population of Turkey and the world is constantly increasing and agricultural production continues to maintain its importance and value. Agriculture, besides satisfying the absolute needs, has important functions in the national economy because of its contributions to the national income, employment, foreign trade, agriculture and agriculture-based industries (Arısoy and Oğuz, 2005). While it reduced the importance of agriculture and animal husbandry in Turkey's economy, it has vital importance for our country because of the healthy and balanced nutrition of the society, development of livestock industry, creation of employment with shortest and most effective investment, support of family economy, development of priority regions in development, increase of rantability in agriculture and foreign trade balances (Bayramoğlu, 2003). Increasing the range of small-scale economic activities that can be undertaken in rural areas under the IPARD program for investments in restoring and restructuring agricultural enterprises to community standards has been identified as an important tool in preventing the immigration of unqualified labor force from urban areas, especially in rural areas (Anonymous 2008). This aim can be achieved by increasing the range of small-scale economic activities that can be done in rural areas. Turkey is one of the gene centers, which is taking a natural bridge task between three continents. Anatolia is divided into 7-8 gene centers within itself. Turkey has 75% of the world flora of honey plants. Biological diversity in Turkey allows to create the production of many different varieties of honey (Terzioğlu, 1994; Soysal and Gürcan, 2005).

Developments in Turkey, the world, and as it is in the EU that cannot be addressed independently of the developments truth and so much about the world of beekeeping in the global development of the country because it is known that more or less affect the current situation regarding beekeeping in Turkey; it should be presented with the situation in the world and in the EU. When we examine the average beehive in the continent between 2006 and 2016, the Asian continent in which our country is located is the first with a share of 44%. (Fig. 1).

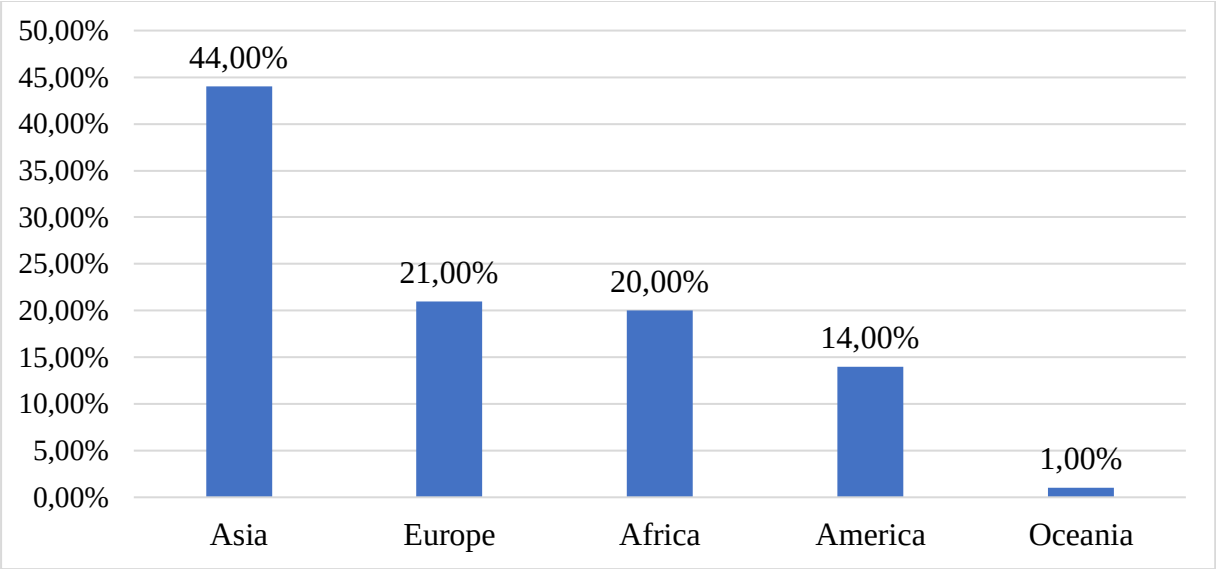

Figure 1. Productıon share of beehives: by region average 2006 – 2016 (Source: FAOSTAT, 2017)

Therewithal the average number of beehives in the world being examined first place, while 14% share of first place in India, Turkey ranks third share of 8%. (Fig. 2).

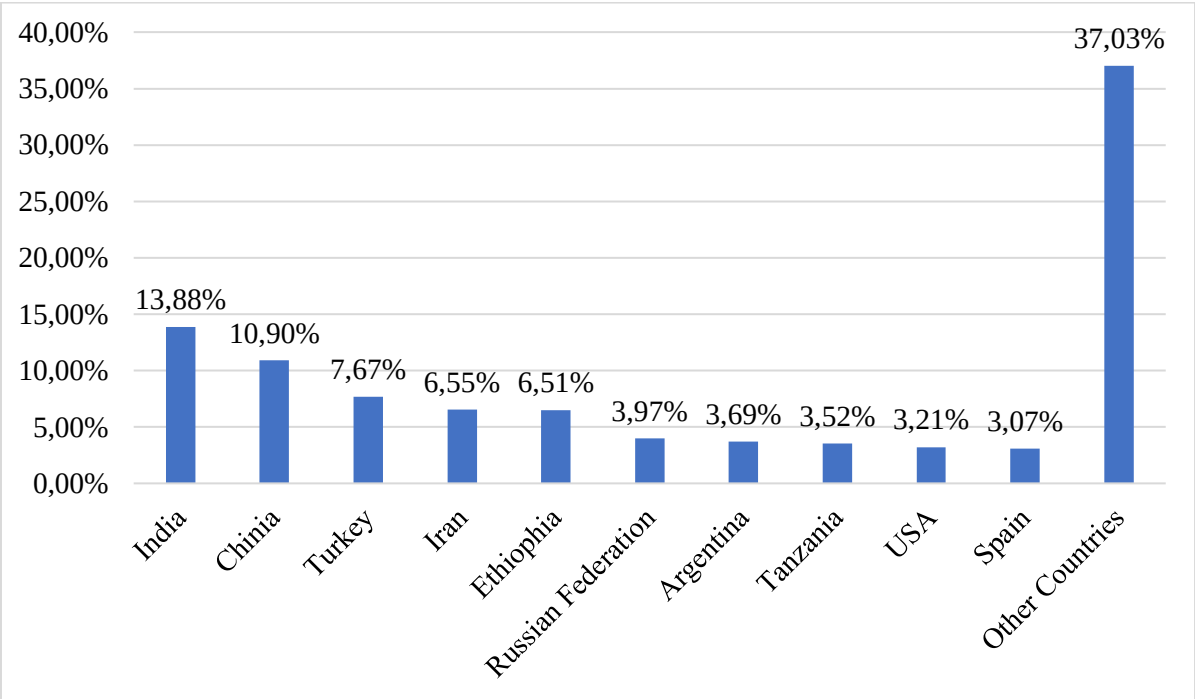

Figure 2. Production of beehives: top 10 producers average 2006 – 2016 (Source: FAOSTAT, 2017)

When we examined the average honey production in the continent between 2006 and 2016, the Asian continent in which our country is located is the first with a share of 45% (Fig. 3).

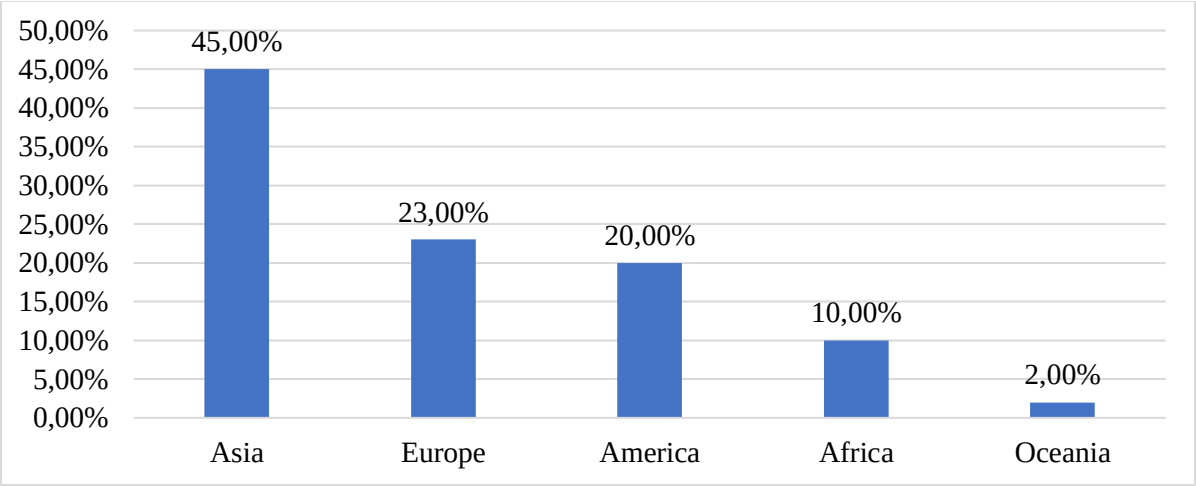

Figure 3. Production share of honey: by region average 2006 – 2016 (Source: FAOSTAT, 2017)

At the same time, given the average honey production in the world, China ranks first share of 24%, Turkey ranks second share of 6%. (Fig. 4).

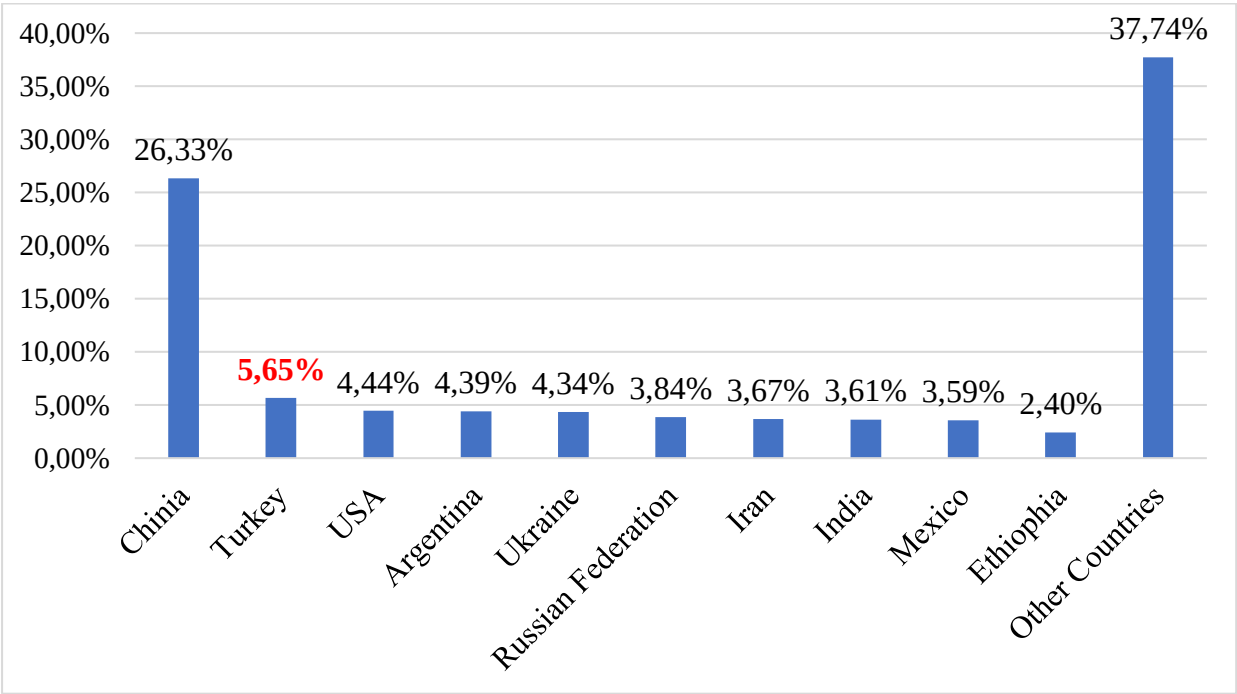

Figure 4. Production of honey: top 10 producers average 2006 – 2016 (Source: FAOSTAT, 2017)

Although India has 14% of the world's beehives and ranks first in the world in the presence of hives, India is not among the top 4 countries producing honey. (Source: FAOSTAT, 2017). As in the world, beekeeping in Turkey it is carried out by the lower and lower-middle class of the society. Honey prices, honey consumption and honey support are other factors that affect honey production. According to the year of the year 2017, when we look at the honey production amounts, the Ordu province takes the first place with 14.68% while the Ordu province is followed by the Muğla province with the 13,86%

(Table 1). Adana supplies 9,37% of honey production of Turkey. When looking at the Van Province average rates is 1,68% the 10th honey production around in Turkey provinces.

Table 1. Number of enterprises beekeeping author year in 2016 by the province in Turkey, the current number of hives, production of beeswax, honey production and percentage

Province	**Number Of Beekeeping Enterprises (Number)**	**Current Number Of Hives**	**Honey Production (Ton)**	**Production Of Beeswax (Ton)**	**Honey Production (Turkey Percentage)**
Ordu	2.716	562.299	16 799.18	114. 999	14.68%
Muğla	5.080	958.328	15 867.14	1 020.20	13.86%
Adana	2.290	454.768	10 729. 26	358.273	9.37%
Aydın	1.670	280.386	4 357.14	134.51	3.81%
Mersin	2.236	273.384	3 864.42	89.366	3.38%
Sivas	3.427	215.878	3 714. 82	388.35	3.25%
Balıkesir	1.670	167.361	3 260. 96	56.608	2.85%
İzmir	2.032	215.743	2 836.21	114.499	2.48%
Antalya	2.491	226.592	2 475.18	124.609	2.16%
Van	626	140.554	1 927.96	148.234	1.68%
Other Cities (Total)	58972	4495779	48 639.183	1938.467	42.49%
TURKEY	83.210	7.991.072	114.471	4.488	100%

(Source: TÜİK 2017)

Beekeeping, a crucial source of income for people living in rural areas and at the same time an important part of the agricultural sector, is an indispensable source of income for rural development. Beekeeping enterprises with low starting and operating capital needs, high return on investment and high rate of return; pollination contribution, environmental sustainability effect, and nutritional value, it is an indispensable source of income. Beekeeping activity, which is highly dependent on natural conditions and which is not affected when the raw materials are collected directly from the nature and when the living forms of honeybees are taken into account, is a production activity that has been acknowledged by the producers for their long years of use of the obtained products and their contribution to the untreated agricultural areas becoming operational. Considering beekeeping enterprises, there is a serious and qualified information gap. The lack of detailed and healthy data at the enterprise level and the inefficiency in production efficiency are the problems that must be resolved in the fastest way. This is the reason honey production in Turkey is in Van province has an important place, the competitiveness of the IPARD program provided in line with the objective to create high sustainable businesses to determine the structural problems of the enterprises benefiting from these grants and it is important to present recommendations for improving the program clarifies the current situation.

Materials and Method

The main material of the study was the questionnaire-derived data from beekeeping enterprises that supported IPARD I program in Van province. In addition to these data, Turkey and EU Agriculture Ministry, Turkey Statistical Institute (TSI), the Food and Agriculture Organization (FAO), the World Bank (WB), the EU Statistical Office (EUROSTAT) publishes belonging to public institutions involved in research and web pages more about this and also benefited from previously discovered research findings and published secondary data. As a research area, Van province was selected according to "Native Sampling Method" (Fig. 3). Van produces approximately 3% of honey in Turkey (TSI, 2017), the maximum area covered by the support hive being beekeeping having 3.4% and is one of the first three IPARD cities. Van has 94 beekeeping enterprises with IPARD support. Since all enterprises receiving beekeeping support in the study were included in the study, "Full Count" method was used as sampling method

The necessary data in the economic analysis and planning of agricultural enterprises can be obtained from the accounting records in the most accurate way. However, accounting records of agricultural enterprises are not usually kept in Turkey. In this case, it is a necessity to benefit from the data obtained from the questionnaire to be done in the agricultural enterprises and the results of the present research (Erkuş et al., 1985). The questionnaire forms have been prepared in accordance with the aims of the research, taking into consideration the characteristics of the beekeeping enterprises in the research area. The questionnaire forms were filled in to the questions asked the enterprise owners. Survey forms were filled in by the investigator himself in order to keep the errors that may occur in obtaining the information constituting the basic data of the research to minimum. After the completed survey forms were examined, checked and edited, the data were analyzed by transferring them to the questionnaire tables prepared at Microsoft Excel.

Results and Discussion

In this study, questionnaires were carried out in 94 operations, which were determined by the full counting method. Production data for the year 2016 was the basis for the operation. In the enterprises, which were surveyed, the average age of the business owners is 36.4, 79% of the business, owners are male and 21% of them are female producers.

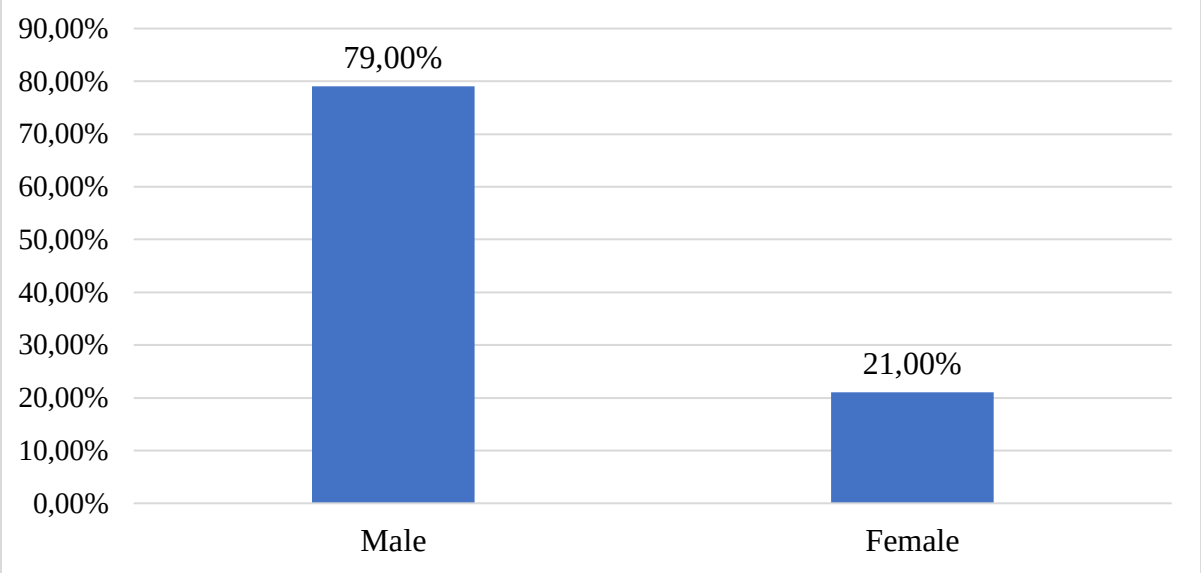

Figure 5. Gender of enterprises owners

43% of enterprises provide income only from beekeeping, while 57% have additional income. 77.6% of the enterprises are making beekeeping as main source of income while 22.4% are making beekeeping as additional source of income (Table 2).

Table 2. according to stationary and migratory beekeeping forms of the inspectors, they have to do for the beekeeping master or supplementary income survey

	Stationary Beekeeping	**Migratory Beekeeping**	**TOTAL**
Main Income	%10.6	%67	**%77.6**
Additional Income	%12.8	%9.6	**%22.4**
TOTAL	**%23.4**	**%76.6**	**%100**

A large part of the beekeeping business in the survey (57%) finding that beekeeping is the essential source of income, Yerlikaya and Falcons (2007) Pülümür district in Tunceli province by Pirim et al. (2011) in Bingöl and Kutlu (2014) supports the results of the surveys conducted in Gaziantep. In Tunceli Pülümür province, beekeeping is an important economic problem and 70% of beekeepers are making beekeeping as main source of income. There is a similar distribution in Bingöl. On the other hand, Yaşar et al. (2002), Çakmak et al. (2003), Barlovic et al. (2009), Özcan (2011), Sezgin and Kara (2011), Kekeçoğlu and Rasgele (2013) and Yalçın (2014) found that researches were made more hobby or supplementary income than being the main source of income. 76.6% of the enterprises surveyed are migrant beekeepers while 23.4% are Stationary beekeepers. Yaşar et al. (2002) and Vural and Karaman's (2009) finds support for research findings. Similarly, 61% of the beekeeping enterprises in the Black Sea Region are migrant beekeepers between regions (Yaşar et al., 2002). 12% of beekeeping

enterprises operating in Bursa are stationary, 43% are migrants in the province and 45% are migrants between the regions (Vural and Karaman, 2009). While 98% of the enterprises grow only bee products, only 2% make mixed production (Fig. 6).

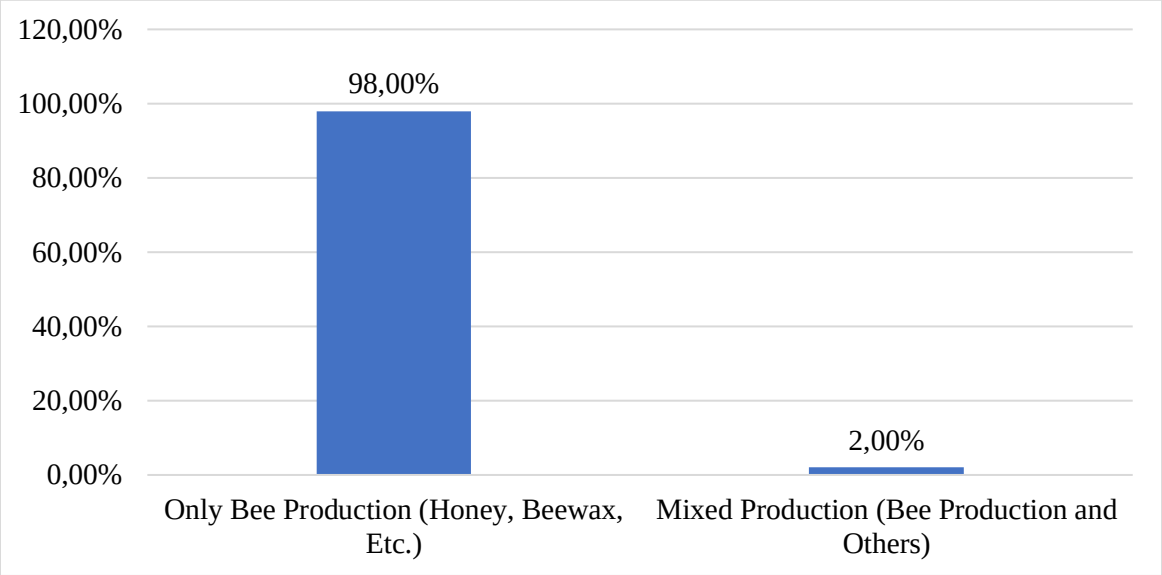

Figure 6. Production pattern

50% of the enterprises use Caucasian Crossbreed as bee strain, 21% is Caucasian, 7% is Buck fast, 5% is Italian Yellow and 4% is Carniol. The remaining 13% do not know the bee breed they use in production, they use mixed bee strains (Fig. 7).

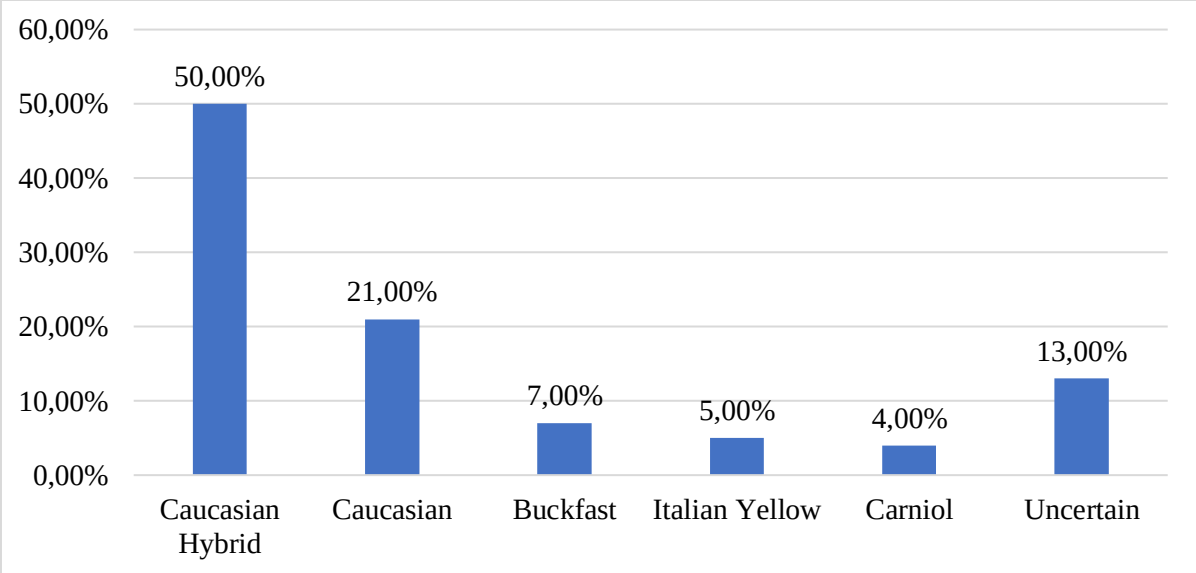

Figure 7. Bee strain used in investigated enterprises

72% of producers are satisfied with the yield of bee breeds, while 26% are dissatisfied (Fig. 8). While 71% of producers are satisfied with making beekeeping as a profession, 29% are not satisfied with beekeeping (Fig. 9).

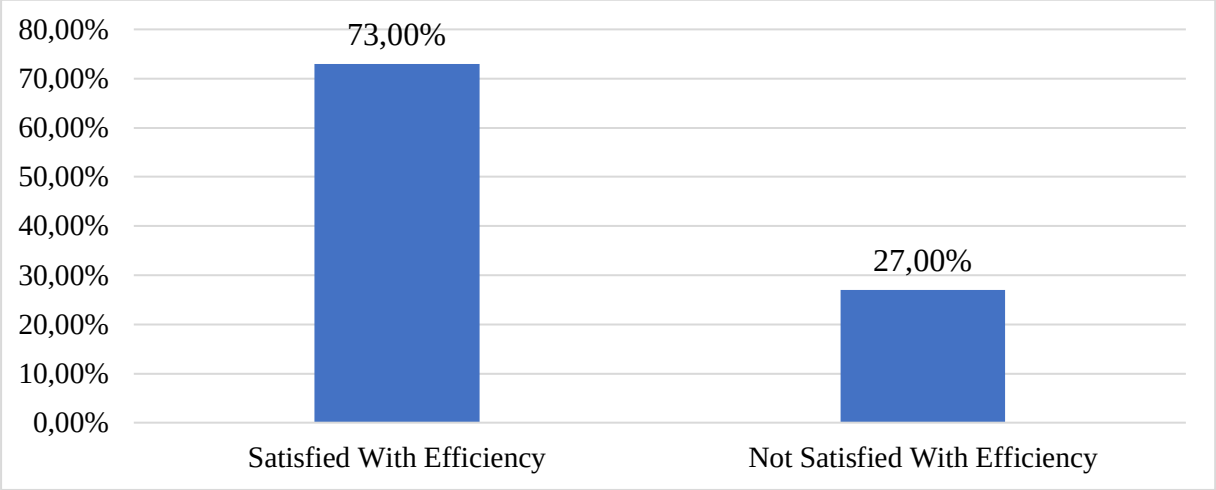

Figure 8. Satisfaction about efficiency of bee strain

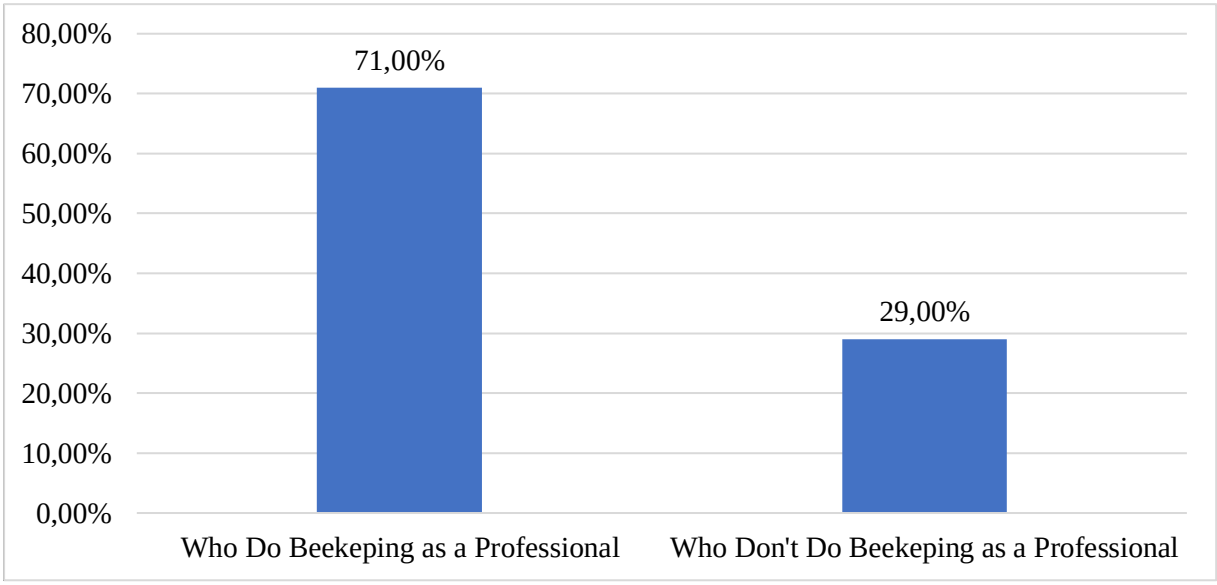

Figure 9. Satisfaction with doing beekeeping as a professional

While 19% of businesses do not benefit from government support, 81% of them have government support (Fig. 10). 69% of the producers received training in beekeeping, but 31% did not receive training in beekeeping (Fig. 11).

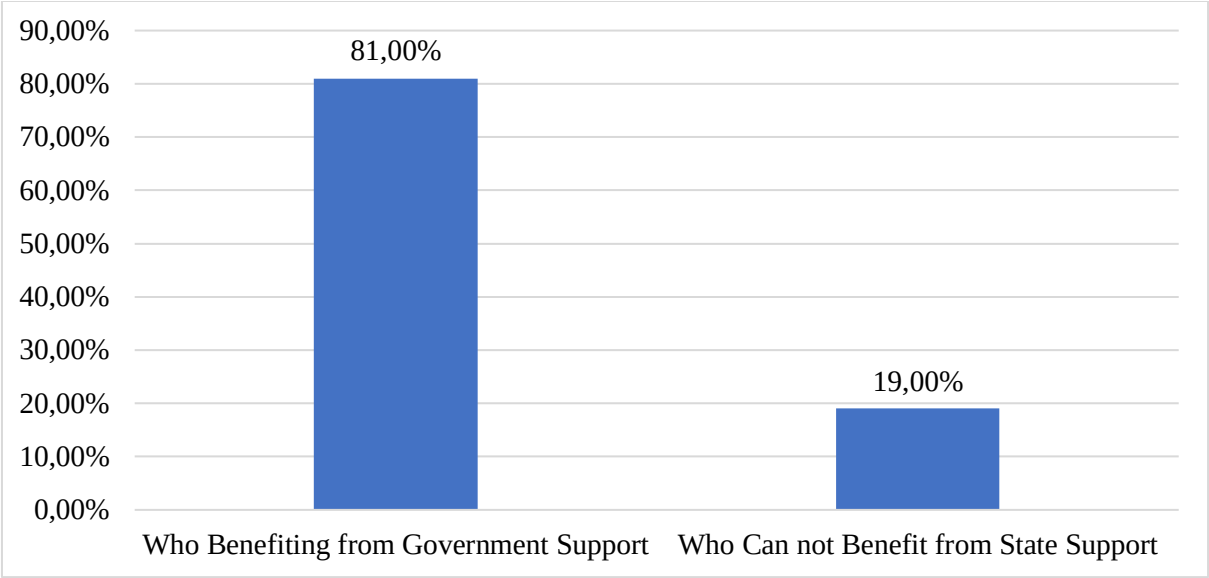

Figure 10. Availability of state subsidies

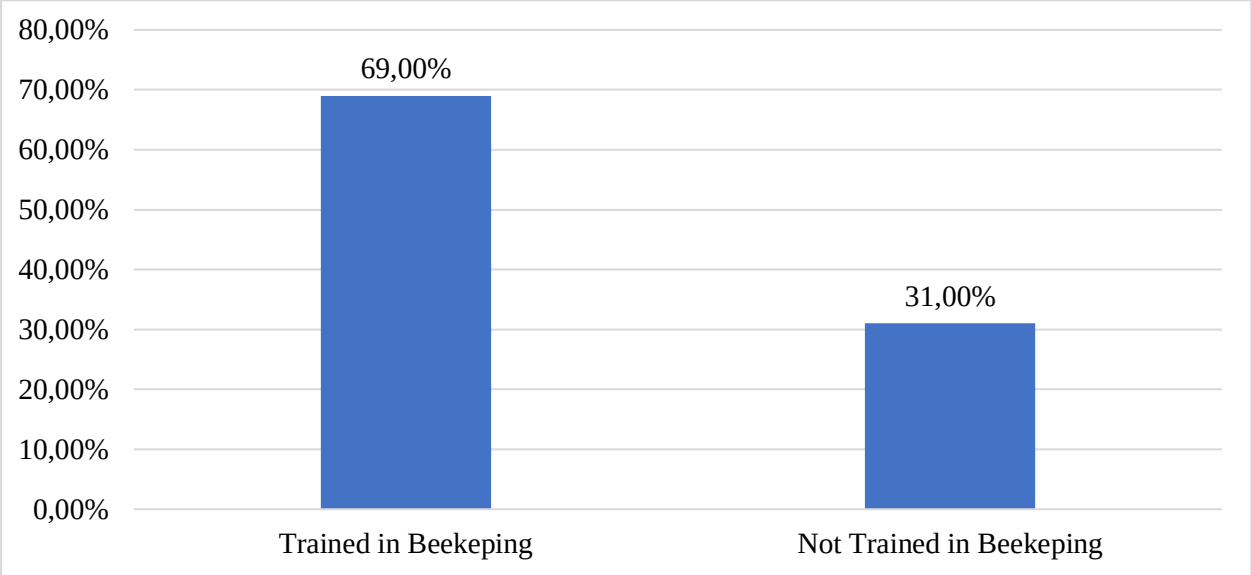

Figure 11. Education about beekeping

In the IPARD I program, a total of 43855 hives are supported in Van Province and 28013 of the supported hives are full. In 94 beekeeping operations, an average of supported hives is 461 and 298 of them are alive. The average number of alive hives of supported enterprises increased significantly over the years (Fig. 12).

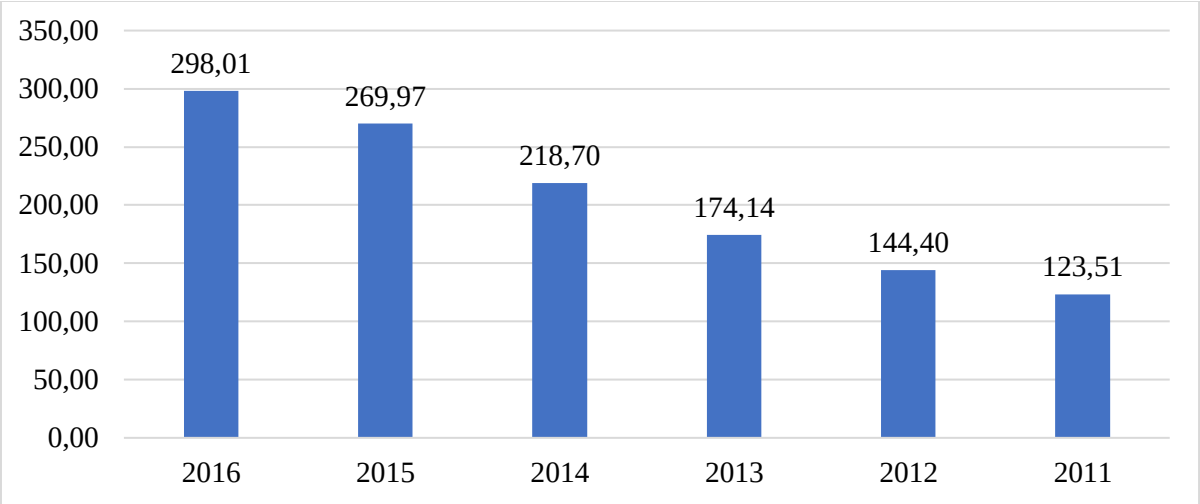

Figure 12. Changes in the beehive according to the years in the investigated enterprises

While 63% of the enterprises surveyed use foreign labor force in their production processes, 21% are temporary, 14% are permanent and 2% use both temporary and permanent labor (Fig. 13).

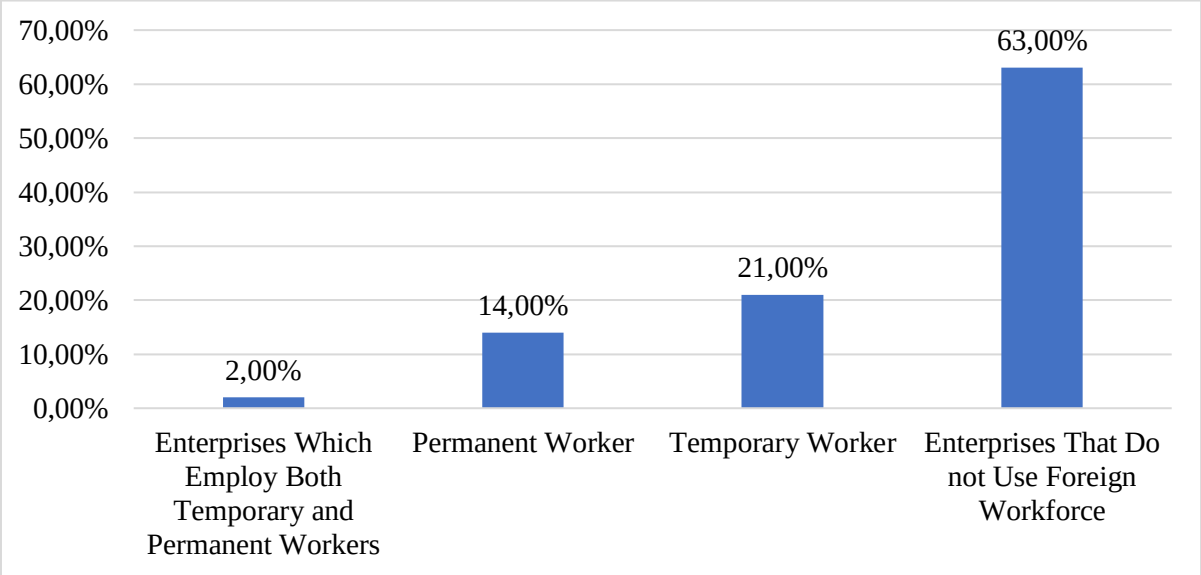

Figure 13. State of labor usage in the investigated enterprises

While 33% of beekeeping enterprises have land ownership, 67% of them are renting the places they use (Fig. 14). The average parcel width of the enterprises surveyed is 10.34 decares. Parlakay (2005), Saner et al. (2011) and Yalçın (2014), ware determined that beekeeping enterprises had an average of at least 30 and at most 51 decares. Compared with the results of our study, the reason of difference is the majority of beekeepers benefitted from IPARD supports are landless farmers and IPARD program is approaching its goal.

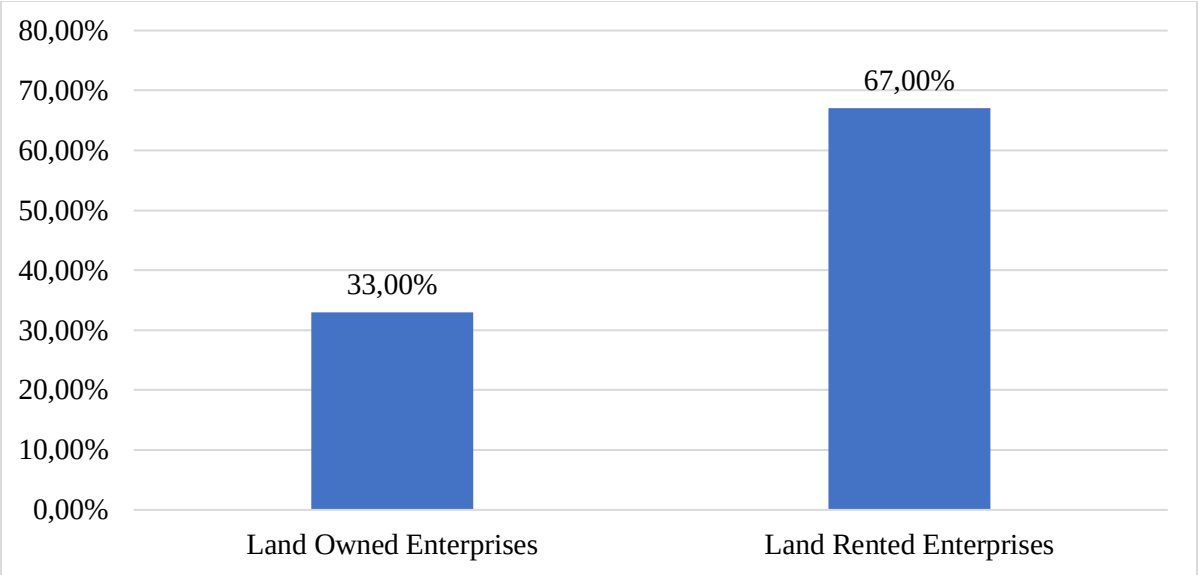

Figure 14. Land property status in the investigated enterprises

While 61% of these enterprises do not carry out any agricultural activities other than beekeeping in their current lands, 39% of them do agricultural activities and the main products they produce are clover, apple, wheat and walnut (Fig. 15).

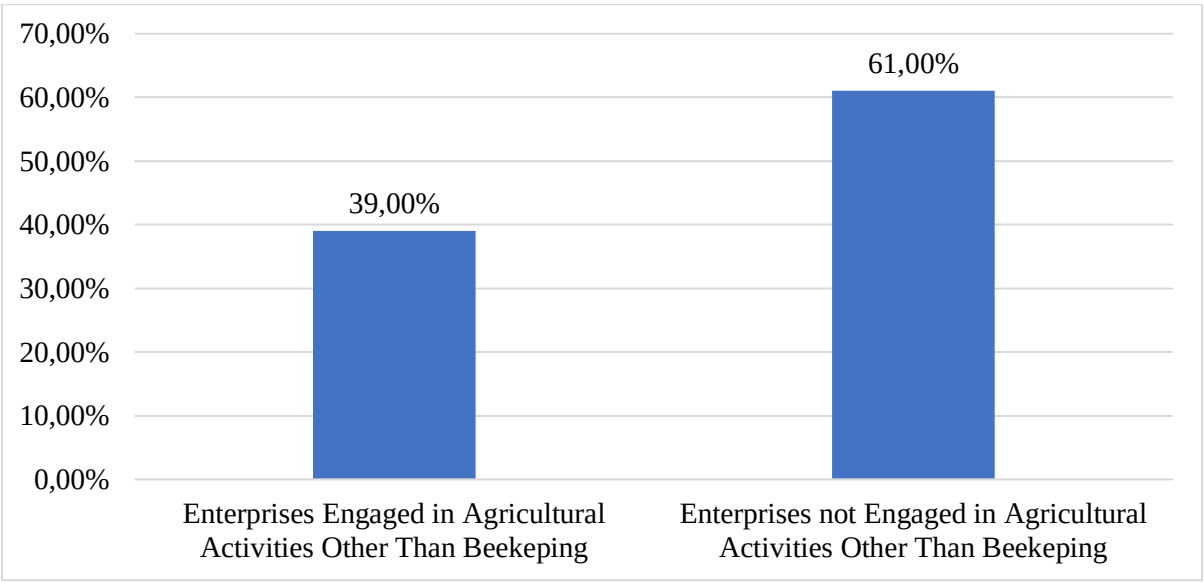

Figure 15. Agricultural activity except for beekeeping in the investigated enterprises

While 40% of businesses resort to credit for beekeeping activities due to insufficient capital, 60% have not used credit. Yaşar et al. (2002) and Yalçın (2014) used loans with low rate of beekeeping operations (21%) than those surveyed. 92% of the credits used are T.C. Ziraat Bank, while 8% used credit from Agricultural Credit Cooperatives. The average amount of credit used by enterprises is 56000

TL. 10% enterprises indicated that their credits were difficult to repay and that they could not pay the installments (Figure 16).

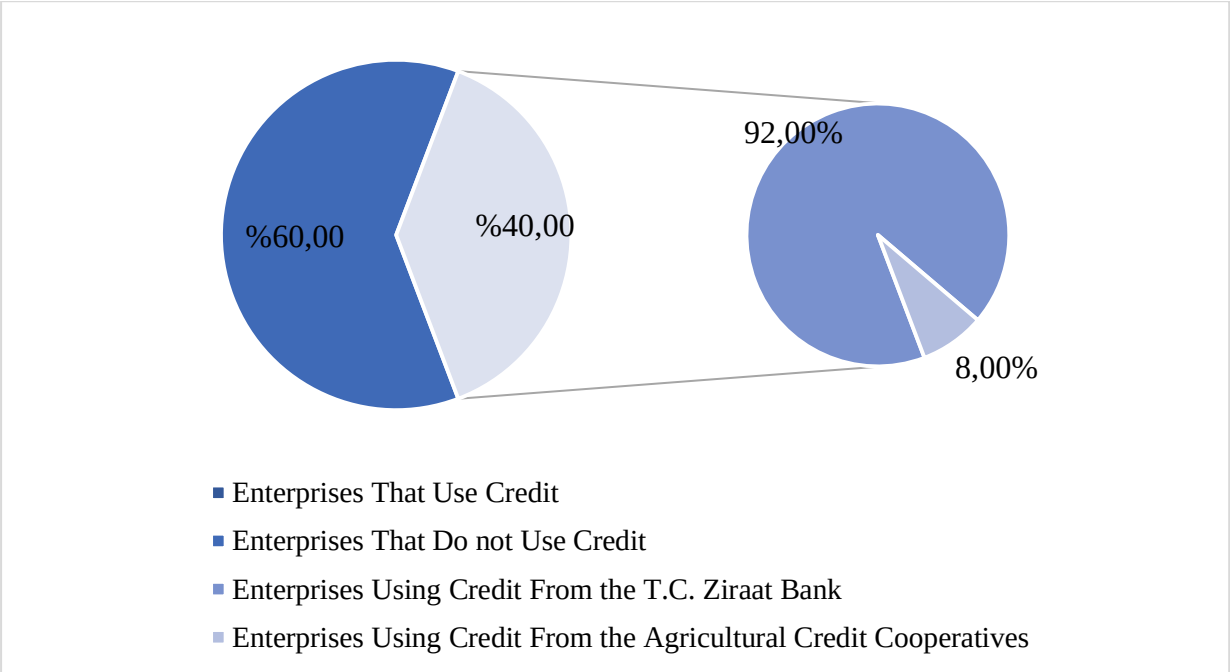

Figure 16. Credit usage status of the enterprises surveyed

7% of 94 enterprises are branded or certified, 93% are not branded or certified, and their average of honey yield is 19.73 kg (Fig. 17). According to studies conducted in Turkey most honey productivity 33.8 kg/colonies in Ordu, while the minimum honey productivity in Düzce Yığılca district 5.7 kg/colonies (Yasar et al., 2002). In addition, honey yield per colony was 18.7 kg / colonies in Tokat (Çiçek, 1993) and 15.6 kg / colonies in the Southern Marmara Region (Çakmak et al., 2003). According to a study conducted in Bosnia and Herzegovina, the yield of honey was lower than our survey with 13.5 kg (Ćejvanović et al., 2011); Croatia with 28.2 kg/colony (Barlovic et al., 2009) and Romania with 25,8 kg/colony (Popescu, 2013) has a higher honey yield than our survey and Turkey average.

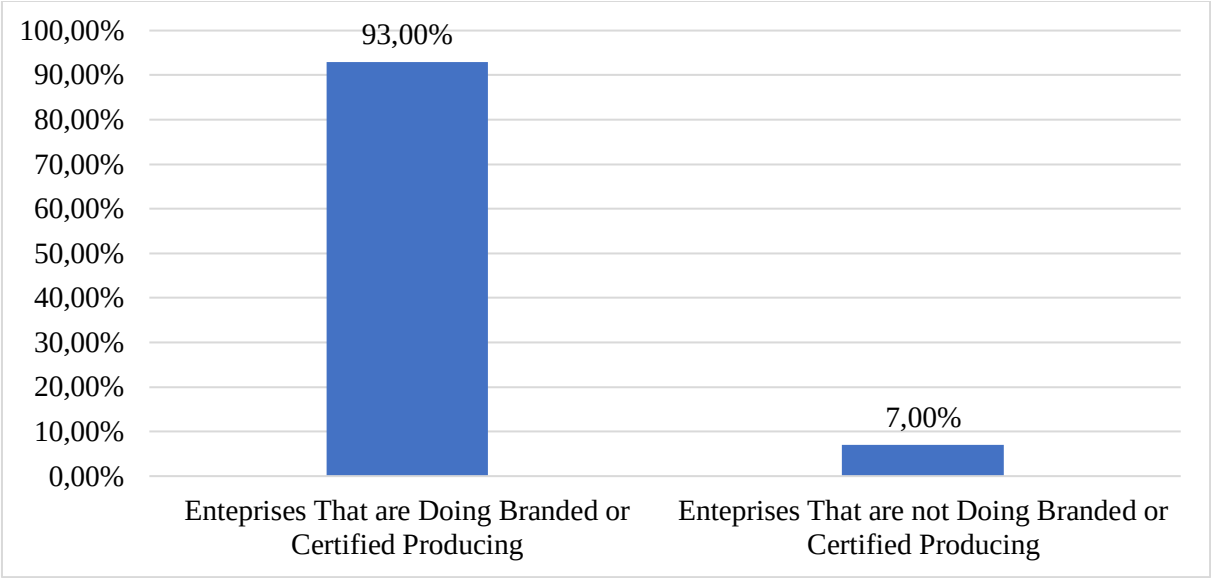

Figure 17. Branded or certified production

While 25% of the enterprises produce honey for sale, 75% of them make cash sales (Fig. 18) and 61% of the sales are made to the province while 39% are made out of the province and abroad (Fig. 19). While only 5% of enterprises are contracted beekeepers, all of them have insurance for their hives and other machinery equipment. 19% of enterprises store their produce, while 81% do not.

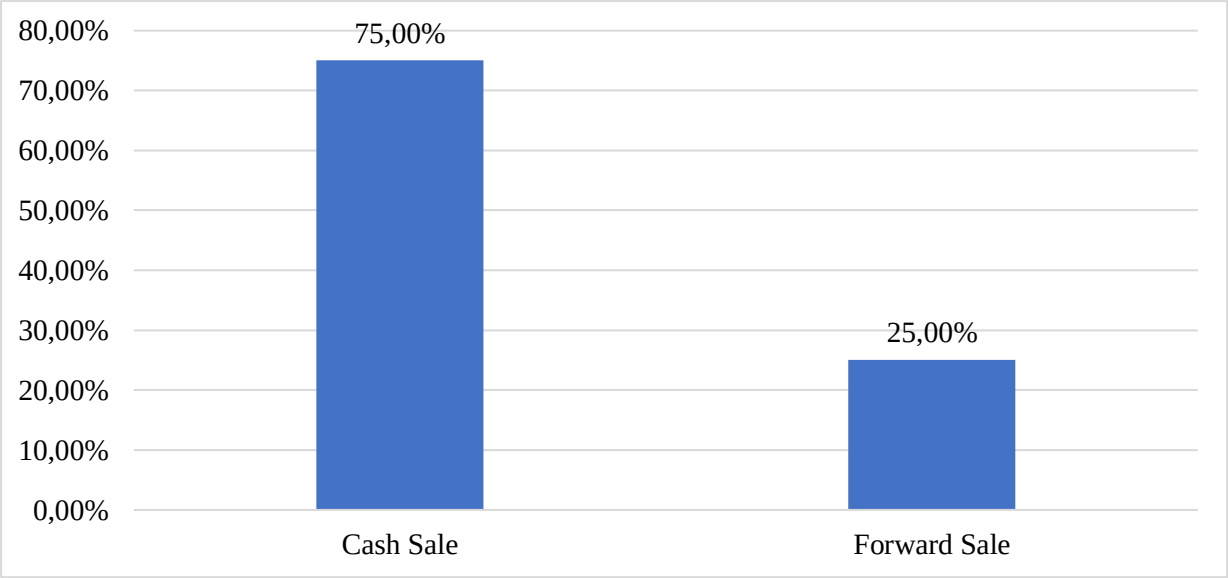

Figure 18. Cash or forward sales in the investigated enterprises

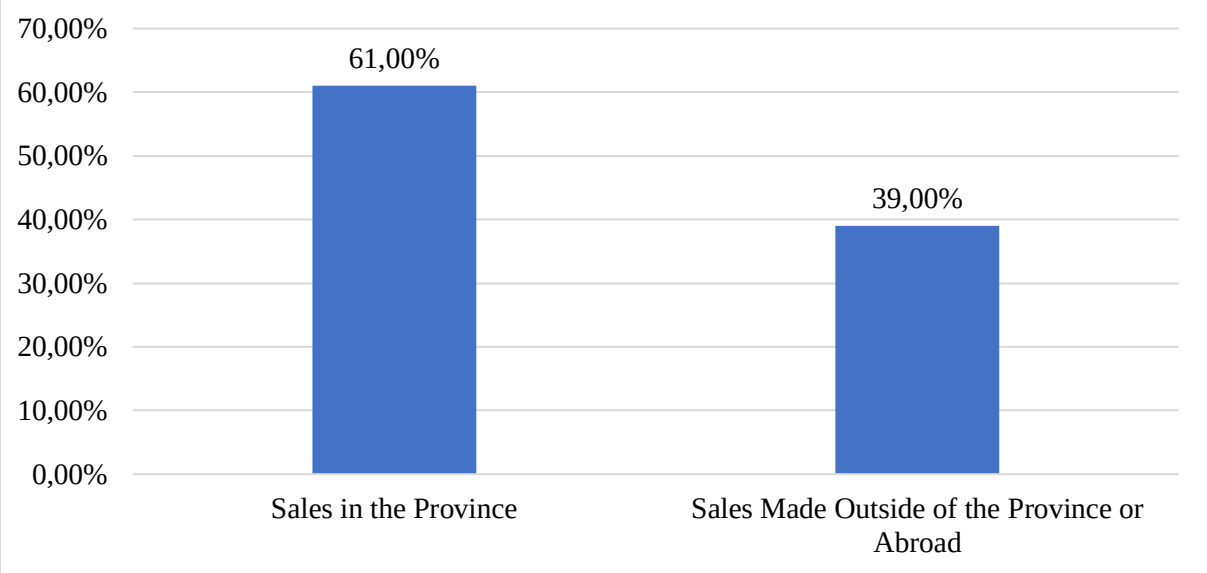

Figure 19. Provincial inside or outside sales in the investigated enterprises

When we examine the participation rate of beekeeping related symposiums, congresses and meetings, 32% of the enterprises participate in symposiums, congresses and meetings, while 68% do not participate and all the participating enterprises participate in domestic symposiums, congresses and conventions. The average number of symposiums, congresses and meetings per enterprise is 1.67 (Fig. 20).

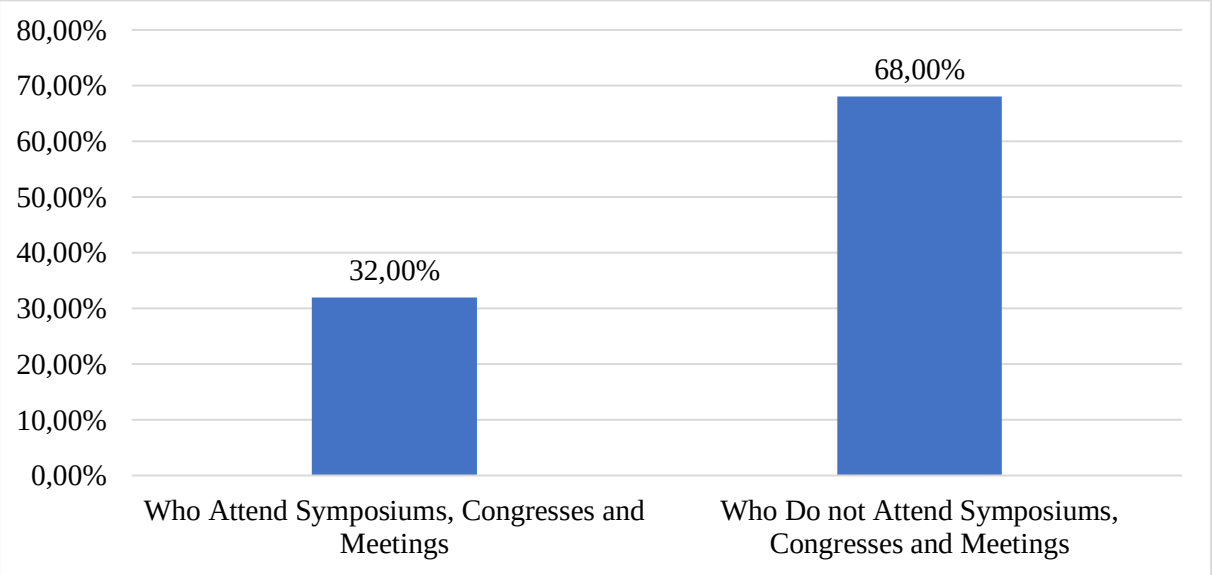

Figure 20. Beekeeping related symposium, congress and meeting attendance rate

When we examine the maintenance and feeding situation, 10% of the enterprises can not apply feeding and maintenance operations to, 61% of them feed with cake and syrup, 21% of them feed with only cake, 14%of them feed only syrup feed and 4% of them feed with honey (Fig. 21).

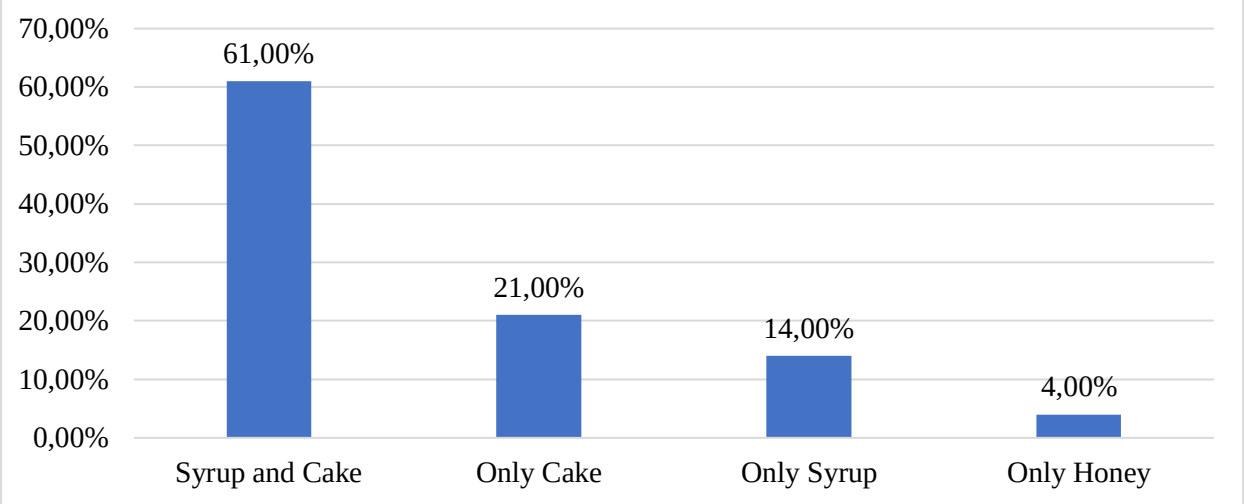

Figure 21. Bee Feeding shapes in the investigated enterprises

The distribution of beekeeping enterprises using syrup or cake in our research is quite different from Seven and Seven (2006) and Saner et al. (2004). Saner et al. (2004) found that 48% of beekeeping enterprises in Muğla and İzmir provinces only used sherbet, 30% used sherbet and cake, 7% used only cake; Seven and Seven (2006) reported that 94% of beekeeping enterprises in Elazığ use sherbet and 75% of them use cake (Fig. 22).

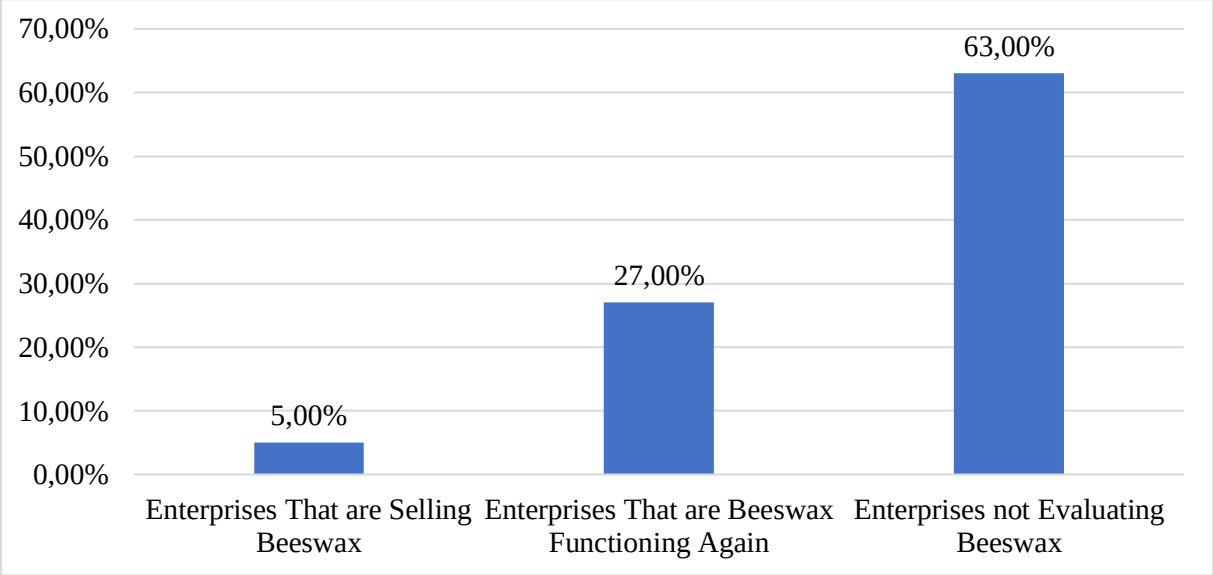

Figure 22. Beeswax assessment status in the investigated enterprises

While all of the enterprises benefit from sacks and straps during wintering, an average of 10.6 kg of honey is left in the hive during wintering and there is an average of 17% colony loss in this process. Some studies carried out in Turkey indicated that wintering losses in beekeeping is at least %9 up to %30 (Doğaroğlu, 1981, Akyol et al., 1999, Güler and Kaftanoglu, 1999, Akyol and Kaftanoglu, 2001, Yaşar et al., 2002, Sıralı and Doğaroğlu, 2005, Akyol et al., 2008). 5% of enterprises sell honey wax

obtained after the production period, 27% are recycled, and 64% are not used. According to enterprise owners, the most important factor affecting honey yield is bee strain (genetic structure) while this component is followed by care and nectar. In honey production, 36% of enterprises value honey production, while 64% aim to produce quality honey (Fig. 23).

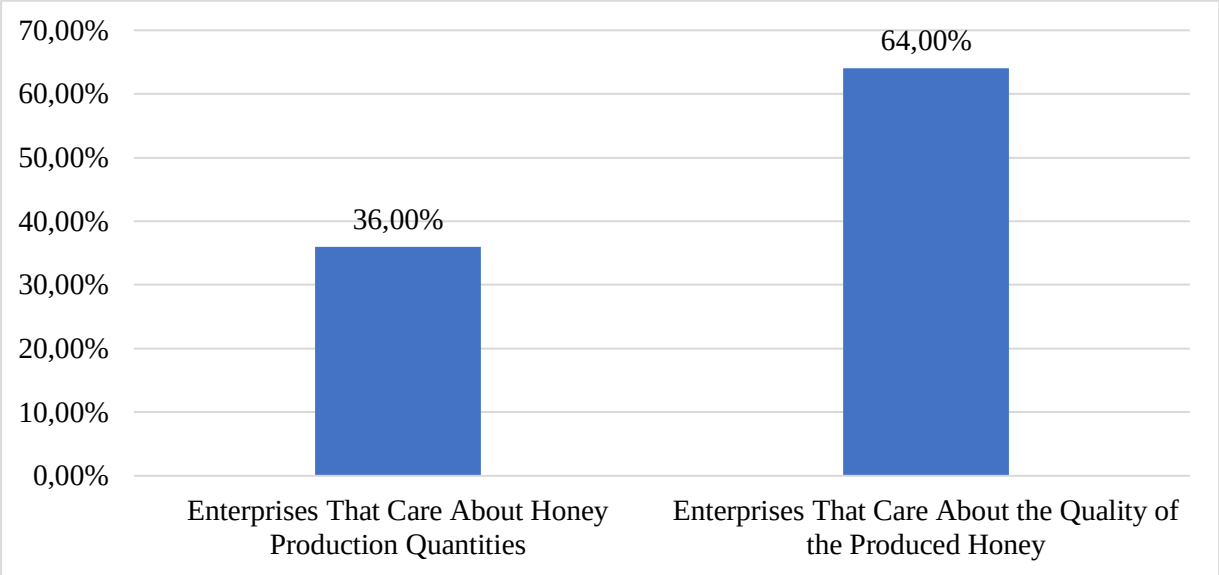

Figure 23. Honey quality and quantity assessment in enterprises

Manufacturers indicate that, buyers take into account the sale price of honey after the quality factors. While producers prioritize paying cash in honey sales, they have set good price as a secondary target. Advancing is the most important expectation in futures sales. When we examined marketing problems of enterprises, it was determined that the most important problem is illegal honey entering the Van region. Especially in Turkey, the illegal honey entering from the Iranian country lowers the price of honey produced in Van and the sale of these honeys from the televisions affects the position of Van honey on the market.

Also spread across Turkey with illegal honey television ads that matter, it is increasing negativity. All of the businesses find the sales of honey through television very useless and call this sales channel the main enemy of the industry. The reason for the low level of organization during marketing is the competitive power of the beekeeping enterprises on the market and the sales value of one kilogram of honey is showing sharp declines. However, the unwinding of honey mixed it difficult to differentiate good quality and low-quality honey, so the value produced honey are sold at lower prices. In the scientific researches investigating the problems of Beekeeping Businesses, similar problems were listed and marketing was mentioned as the most important and common problem area (Fıratlı et al., 2000, Yaşar et al., 2002, Erkan and Askin, 2001, Vural and Karaman, 2009, Kekeçoğlu ve Rasgele, 2013). In

Nigeria, two of the most important issues in beekeeping operations are inefficiency and theft in the fight against diseases in Katsina (Yahya and Usman, 2008), while inadequacies and thefts in credit facilities occur (Tijani et al., 2011). All of the state expectancies in the province of Van supported by the IPARD I scheme are comprehensive. Prevention of Illegal honey, continuous training on beekeeping, increasing direct income support given per barrel, made with stuffed sleeves with compatible bee race of the support, conducting comprehensive studies on transport and accommodation, to be seen as a profession of beekeeping, certainly pesticides mania in the accommodation areas, especially in the highlands of the prohibition and of in providing security against terrorism it can be listed as main subjects. The expectations of the producers' associations surveyed farms reduction of marketing in pulling up the sales price by playing an active role in the organization and input costs, to increase training of about beekeeping, grant programs and manufacturers of all developments in beekeeping is given as to inform quickly.

Conclusions and Recommendations

Despite the rapid increase in the number of hives and colonies in recent years, as well as the rich flora resources our country has, the low yield per hive is the biggest problem in the beekeeping sector. At the same time the increase in the diversity of bee products is another important issue. Individuals wishing to specialize in apiculture should be supported by the state and benefit from government incentives. Beekeeping operations are carried out in the mountainous areas required by the nature of the beekeeping, which brings with it many difficulties. As a result of the terrorist incidents in Van province, beekeepers cannot go to the mountainous areas where pollen resources are used to increase the yield of honey. Regional security forces for transportation safety reasons hinder flora’s rich mountainous areas and springs, and even if law enforcement agencies do not prevent them, they are afraid of terrorism from going to areas where beekeepers are concerned. The accommodation areas of enterprises that do migratory beekeeping must be made safe by the state, safe production areas for beekeepers should be established. Business owners who applied the questionnaire state that the trainings given by public institutions and organizations are in theory good but inadequate in practice. Beekeepers who try to dismantle educational openings with private associations also state that they meet the same situation in special education. Failure to transfer theoretical training to practice due to be a profession that requires active working for nine or ten months of beekeeping year causes production disturbances and seriously increases the rate of loss of colonies when it is needed. The beekeepers are trying to go alongside their other beekeeping colleagues, which causes the misapplication of beekeeping to spread and the mistakes that are applied during the past production periods to be recognized in beekeeping. Enterprises that are inadequate in terms of marketing should go through organization with these deficits. All my businesses belong to beekeepers' associations. The more active the associations will increase the market activities of the enterprises. Businesses are having communication problems with unions, but they do not make

any effort to resolve the problem. The fact that inspectors are fully informed about beekeeping innovations supports the fact that beekeepers are not involved in meetings, training or symposiums. Beekeepers should be encouraged to participate in such meetings and, if necessary, be mandated by the state. Within this scope, public institutions and organizations in Van province need to develop sensitivity on the subject as a stakeholder. Honey yield reflects the average of Turkey in the enterprises surveyed by ensuring optimal operating conditions to raise this value by developing and marketing channels, bringing the price according to the unmediated quality honey directly to the consumer should be the main target.

Additional Declaration

Research and publication ethics principles were comply with in this study. Authors contributed equally to the study.

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