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Study Of Some Factors Related To The Limited Production Of Honey In Wasit Governorate, Iraq

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ABSTRACT

Beekeeping is one of the most important branches of agricultural exploitation, because of a great role in increasing the of producers. This study was conducted in Wasit Governoarate, Iraq. The aim of the study identifies the impact factors in the limitation production of honey. The study was carried out 177 registered in the Wasit Agriculture Directorate to conduct the study a multistage simple random sampling technique of 31% of beekeepers, as the sample size 55 beekeepers. A questionnaire was prepared to study the problems facing beekeepers, as the form included six items, namely factors: environmental, biological, chemical factors, processing, marketing and cognitive. The data was collected through the personal interview, and the data collection process continued for (May, June 2019). This study revealed that the highest percentage 65.45% belonged to the medium category of impact factors related with limitation production of honey. Also, the problem of price changes it was most important problem facing beekeepers (prices for obtaining raw materials in addition to selling prices for the product). As for the effect of chemical pesticides, it is considered one of the most important items facing the beekeepers it will lead to reducing the number of bees

Keywords: beekeepers, chemical factors, Honey production, production problems , knowledge factor

Introduction

In Iraq, beekeeping has a great contribution to the domestic production cross of the country. The production is amounted to (53) billion Iraqi dinar currency. These beekeeping's projects have been played a role of improve the balance of payments and attracting foreign currency into Iraq. In addition, the products are exported to anther countries (Mahammed, 2007).

Recently, most of the countries around the world are interested in caring of honey bees. The important of honey bees are various agricultural, nutritional, therapeutic, retrofit, economic, and educational fields (Root and Root, 2005). Beekeeping is one of the most important branches of agricultural exploitation worldwide. It can be considered an agricultural industry that does not required a lot of money. At the same time, it brings the greatest benefits to the honey bee breeder (Abu Layla, 2003).

Morse and Calderone (2000) have been showed that honey bees in America pollinated about 90 different crops. The estimated value around $ 14.6 billion annually. Sirali (2002) indicate that 3.4 million bee colonies have been found in Turkey. They have been managed by 40,000 technical breeders, which

are considered the most important income for more than 200 thousand families. In Syria, most of the apiaries are non-specialized apiaries. The number of apiaries in which specialists work does not exceed 3% of the total apiaries. In 2006, the beekeepers are losing a huge number of colonies, which were estimated 30%. In 2007, 50% of the hives are damaged and the production were decreased from 2409 tons to 2319 tons of honey. In 2011, the number of hives in Syria has been reached 631526 hives, including 507909 modern hives (Dawara et al., 2015).

In Iraq, beekeeping plays a great role in agriculture production, and it is not limited to products of natural honey only, but also to its many benefits as poison, bee sting, queen production, bee honey bee parcels and etc. In agriculture part, beekeeping is playing important role in increasing agricultural production and improving its quality. So, it is so important to give the honey bee breeders more training in modern methods, such as providing necessary treatments in how to treat some diseases and solving problems (Qallaf, 2008). This work is belonging to Agricultural extension, which is an important role in beekeeping and honey production. Also, an intermediary between beekeepers and related research centres. It works on transferring the results of research, studies and modern technologies from their centres to the breeders and providing them with advisory bulletins. It has also been working to identify the problems that facing beekeeping and transfer them to the relevant authorities in order. In addition, to improve the beekeeper skills and how to find the successful solutions and organize programs (Cashcha, 2013).

In Nigeria, Ebojei (2008); Matanmi (2008) have been found that follow the traditional breeding methods, low funding, pests and predators, poor storage, small area of the apiary, no information on beekeeper, marketing problems are the main problems of beekeeping and honey production. Kashash (2013) found that 47 problems have been identify, such as air pollution, pesticide poisoning, preparing bees, lack of mentors specializing in beekeeping, poor funding for breeders and competing with imported production.

Recently, it was noted that agricultural guidance regarding to beekeeping is relatively absent, as well as the poor financial sources and the human resources need some improvement (Maghool, 2006). Decreasing of honey bee in Wasit city is related to many problems that facing the beekeepers. Therefore, the aims of this study to identify the problems that facing beekeepers in Wasit Governorate. In addition, arranging the problem in each area of research according to their importance for the respondents.

Materials and Methods

1. Research samples

   The samples were taken in survey method. This method has been used to identify the problems of the beekeeping, as this method is suitable for conducting this type of studies and it falls within the descriptive approach. The research samples represent all beekeepers in Wasit Governorate, southern Iraq, Iraq who are registered within Wasit Governorate. There are 177 beekeepers are registered in Wasit Agriculture Directorate, 2019. The sample size was determined using a simple random sample of 31%. Sample size was 55 beekeepers, which were chosen randomly.

2. Data collection

For the data collection, a questionnaire form was prepared to study the problems facing the beekeepers, as the questionnaire included six objectives: environmental factors, biological factors, chemical factors (pesticides), processing factors, marketing factors and cognitive factors. A set of subjects for each of these areas (3,5,3,5,8,4) have been identified, distributed respectively to the research areas. Some references such as (Abu Layla, 2003), (Al-Shari'i et al., 2008), (Al-Ta'i and Kumaila, 2008) and (Hassan and Azza, 2009) were used with the weights of (1.0). The total of subjects indicates the extent of the problems that beekeepers are confronted with the questionnaire. The questionnaire was presented to number of experts in the field of agricultural extension.

3. Statistical analysis

In this study, descriptive statistical measures (averages, frequencies, percentages and standard deviation) have been used to analysing the data. This is to identify the most important problems facing beekeepers in this Governorate.

4. Test validation and reliability of the study

4. 1. Virtual honesty (expert evaluation)

The form has been presented to a group of experts in plant production and Agricultural extension areas to ensure the appropriateness of the subjects. All observations were recorded, reformulated, and adjustments made according to their suggestion in order to improve of the study. Seven in agricultural extension exports have been record their apparent validity of the instrument, such as the type of expressions, style of writing, extent of clarity, accuracy of their measurement, and the way to answer the subjects, as some subjects have been removed from the form according to their suggestion.

4.2. Stability of the form

The reliability of the form has been tested to measure the varieties, this is included the scale using the Cronbach alpha test, where the result of the scale is statistically acceptable if the Cronbach alpha value is more than (0.60) (Sakaran, 2006) and whenever the value approaches (100%) this indicates a degree of stability. The result of the Cronbach alpha test for the study scale was (0.95), so the tool can be described as stable and the data obtained were suitable for measuring varieties. On 3/3/2019, preliminary test has been recorded for the outside of the sample in the research.

5. Results and Discussion

To identify the most important problems facing the beekeepers and determine their importance from the viewpoint of the beekeepers in Wasit Governorate, the research objectives were addressed as following:

The first objective: identify the problems facing beekeepers in Wasit Governorate

To measure the level of identifying problems facing the beekeeper. A group of (28) questions were asked about the most important problems facing beekeepers. It was found that the highest value for the naturalness of problems facing beekeeper was (22) degrees from the highest numerical value for the level of problem identification, (28) degrees with a rate of (40%) and the lowest numeric value for the level of problem identify was (11) degrees from the lowest possible value (0) with a rate of (20%). Noting that the degree of determine the importance of problems for each question was (1.0), as the beekeeper awarded (1) in the case of the correct answer and (0) in the case of the wrong answer. The bees showed that the highest percentage of beekeepers (65.45%), which was in the middle group, (21.81%) in the high group, and (12.73%) in the low group, with a mean of (16.54) (Table 1).

Table (1) general problems facing beekeepers in Wasit Governorate

No	groups	Replicate	%	Mean	SD
1	**Low=$\overline{(X - S.D}$ 16.54-3.02=13.52)**	**7**	**12.72**	**16.54**	**3.02**
2	**Middle =($\overline{\overline{x + S.D}}$ 16.54$\overline{+ 3.02)}$**	**36**	**65.45**		
3	**High=$\overline{(X + S.D)}$16.54+ 3.02 =19.56)**	**12**	**21.81**		

In table (1), results showed that the level of identifying problems by beekeepers was tends to high because the highest percentage falls within the second level in identify the problems facing beekeeping. This result is due to many factors, including few of Vegetation. This reflects the changing climatic conditions. The percentage of drought, the increase in temperature and the fluctuation of the rate of rain, which works on the negative factor on the plant, which is the first food source for bees. The density of bees has been affected with biological factors, which is decreasing the honey and bees and less resistance to parasites and diseases. In addition, the lack of plants and food sources prompting beekeeper to try to enhance awareness and participate in various extension programs to identify the most important means that can be challenged or treated Environmental, biological and chemical problems during the production period of honey, such as the red wasp and ants. All these factors have prompted beekeepers to increase interest in how to face these problems that affect the nature of production.

The second objective: Arrangement of problem sections according to importance:
To measure the level of identify the problems faced beekeepers during beekeeping, the number of beekeepers has been counted. Form these, the level of importance was calculated. The highest number was (43) an average (0.78) and the lowest value was (22) degree with range of (0.4). The questions have been arranged in descending order as in Table (2).

Table (2) arrangement of problems related to honey bee breeding

No	Question	Correct answer	Mean	Arrangement section
1	Affect the price on hives	**43**	**0.78**	**1**
2	The type of beekeeping	**41**	**0.75**	**2.5**

3	The use of herbicides	**41**	**0.75**	**2.5**
4	Water pollutes in breeding areas	**39**	**0.71**	**3**
5	Types of markets that export the honey bees produces	**38**	**0.69**	**5.5**
6	Fungal or bacterial pesticides	**38**	**0.69**	**5.5**
7	Markets for selling honey bee products	**37**	**0.67**	**8.5**
8	What is the effect of mites disease?	**37**	**0.67**	**8.5**
9	What is the effect of wax worm insects?	**37**	**0.67**	**8.5**
10	The spread of oil wells in the city	**37**	**0.67**	**8.5**
11	Air pollutes in breeding areas	**36**	**0.65**	**12**
12	What is the effect of polycystic disease?	**36**	**0.65**	**12**
13	How to use public health pesticides?	**36**	**0.65**	**12**
14	The spread of communication and Internet towers (radiation effect)	**35**	**0.64**	**14.5**
15	Aircraft control (for palm or citrus)	**35**	**0.64**	**14.5**
16	Honey bees' products that marketed	**33**	**0.6**	**16.5**
17	Availability of honey bee equipment	**33**	**0.6**	**16.5**
18	Using modern technologies in beekeeping	**32**	**0.58**	**18.5**
19	What is the effect of varroa mites?	**32**	**0.58**	**18.5**
20	Queen rearing and pollination by beekeeper in the study area	**31**	**0.56**	**20.5**
21	What is the effect of infecting hives with brood rot?	**31**	**0.56**	**20.5**
22	The Warwar Bird	**30**	**0.55**	**22**
23	What is the effect of diarrheal disease on bees?	**29**	**0.53**	**24.5**
24	Type of honey that make high marketing	**29**	**0.53**	**24.5**
25	Government support for honey bee breeding equipment?	**29**	**0.53**	**24.5**
26	The price of selling in the city	**29**	**0.53**	**24.5**
27	What is the effecting of red wasp?	**24**	**0.45**	**27**
28	The honey bee products that are marketing	**22**	**0.4**	**28**

Table (2) shows the order of questions in descending order according to the number of beekeepers who answered the correct answer and the rate of each question. The first five questions (1-5) took a relatively high importance in identifying the problems facing beekeepers (the effect of prices on the creation of hives, types of beekeeping methods, use of herbicides, level of water pollution in the breeding areas, type of markets to which honey bee products are marketed. These questions an advanced level may be due to considering prices a determining factor for the number of hives and honey productivity. This is because the financial resources need to provide production requirements such as hives, wax, nutrients and control materials to control viral enemies that infected hives.

On the other hand, the benefit that beekeepers got to provide their life requirements as this work is one of the income sources. Also, there are no credit sources for the beekeepers if they need to expand their projects because of the routine work and the huge guarantees that must be provided to obtain loans. In addition, beekeepers and the use of pesticides are also considered among the determining factors for the number of bees inside the hives. Other factors are the hive places and the type of pesticides, which is using to control the pathogens and pests. This is also a key of effecting the bees feed. This prompted many beekeepers to pay attention for it and give it a high degree of focus by finding a good ways to deal with it and trying to collect additional information by participating in extension programs.

The third objective: In this objective, the research was determined the most important obstacles facing the beekeepers. It was divided into six main objectives, in descending order, according to the level of importance that each objective obtained (Table 3).

Table (3) arrangement of objectives according to their importance to beekeepers

No	objective	level of fixing problems
1	The extent of the influence of chemical factor (pesticides)	**0.70**
2	The extent of the influence of environment factor (pesticides)	**0.66**
3	The extent of influence of cognitive factor	**0.63**
4	The extent of influence of the preparatory factor	**0.6**
5	The extent of the influence of biological factor	**0.58**
6	The extent of influence of marketing factor	**0.55**

Table (3) shows that the arrangement of the objectives that were studied in order to determine the most important obstacles facing the beekeepers in Wasit Governorate. The effect of chemicals factors was the main important factor because it causes the danger effect on the bees' life. Also, the chemicals effected on the number of bees and their activity. In addition, it effects on the nectar collecting and honey production. The wrong dose of pesticide is affected on human as well.

In general, the problem is also exacerbated in the environmental, due to the lack of pollinators for wild plants. As for the focus of environmental factors, it took the second place in the interest of beekeepers. Temperature is affected on the bees' activity and they are too active in sunny days. The number of excrement bees increases when the temperature continues to rise until it reaches a relatively constant level. The flying activity of bees stops during the rainy days, and the bees may fly between showers for short distances to up of 150 meters.

The relative humidity is not an important factor in the activity of bees, but, the combination of humidity and temperature are more important in the opening of the flowerbed and the availability of pollen for the visiting insects. If low temperatures and high humidity have a double effect of reducing activity and slowing the release of pollen. The high winds reduce the number of daily trips, so the bees lose the initiative when wind speed reaches 24 km/h. Also, the degree of lighting influences flight activity during periods of heavy cloudiness. All these environmental factors are important for trees.

Conclusions

In conclusion, enhancing the role of extension specialized in beekeeping and honey production by increasing the implementation of various extension programs. Also, provide the government support like increase the funding for these beekeepers and increase the programmes that improve their experience in this area. In addition, set up specific standards for importing honey to ensure the quality of the importer and protect local production.

References

Abu Laila. Saad Mustafa Muhammad (2003) Beekeeping Instructional Circular No. 792,(in Arabic). Central Administration for Agricultural Extension, Agricultural Research Center, Ministry of Agriculture and Land Reclamation. Republic of Egypt.

AL-glaaf. Abdul Amir (2008) Apiaries and their development (in Arabic) . Ministry of Agriculture and Livestock. Kuwait.

Al-Shari'i, Rafiq Qasim Abdo, Abd al-Rab Abd al-Wahhab, Najeeb Ali Saeed al-Sagheer (2008) An economic and social study of honey bees and their natural pastures and problems facing beekeeping in Rimma District, (in Arabic) .General Authority for Agricultural Research and Extension, Ministry of Agriculture and Irrigation, Republic of Yemen.

Al-Taie, Hussein Khudair, Kamila. Ward Shaher (2008) The Training Needs and Problems of Beekeepers in Iraq, (in Arabic).Iraqi Agriculture Journal 2 (2): 173-184 Iraq.

Dawara. Maher Hayel, Rimal Saab, and Kholoud Taqi (2015) Study of Reality of Honey Beekeeping and It's Economic Feasibility in Sweida Governorate(in Arabic). South Syria. Jordanian Journal of Agricultural Sciences.

Euboea, G. O. (2008) Assessment of the contributions of beekeeping extension society to the income of bee-farmers in Kaduna state PAT 4(1) 28-37.

Hassan . Sabah Mustafa. Azza Gamal (2009) a study on the competitive position of Egyptian bee honey (in Arabic). Central Administration for Marketing Research and Commodity Studies, General Administration for Investment Goods, Ministry of Trade and Industry. Egypt.

Kshash H. Bassim (2012)Beekeepers Problems in AL-Diwaniyah City (in Arabic). AL-Qadisiyah Journal For Agriculture Sciences, 2013, Volume 3, Issue 2, pages 67-76.

Majhool. (2006) Summary of studies of plant and animal production strains (in Arabic) . Directorate of Studies and Coordination Agricultural Statistics Project "(FAO) Ministry of Agriculture. Republic of Lebanon.

Mitanni, B.M. (2008). An analysis of activities of bee hunters and beekeepers in Oyo state, Nigeria. African Journal of Livestock Extension – Vol. 6.

Mohammed. Omar Hamid Majeed (2007) The Reality of Beekeeping in Iraq and Ways to Develop It(in Arabic). Baghdad University . collage of Administration and Economics.

Morse,R.A. and calderone ,N. (2000) the value of honey bees as pollinators of V.S. crops in .Bee cult. 128.

Root,A.L, Root.E.R. (2005) the ABC and XYZ of Bee culture kessinger publishing P.74.

Sekaran .U. (2006) Research methods for business. A skill building approach .4thed . wileylndiaprt. Limited . India .

Sirali .R. (2002) the general apicultural situation of Turkey.