SOCIO-ECONOMIC IMPORTANT OF BEEKEEPING IN LAFIA LOCAL GOVERNMENT AREA OF NASARAWA STATE, NIGERIA.

ABSTRACT

The study assessed the socio-economic important of beekeeping in Lafia local government area of Nasarawa state, using structured questionnaires and interview schedule. Sample of 29 respondents were selected for data collected based on the 2019/2020 production season. The data include socio-economic characteristics of the respondents, their management practices, input and output level of honey production, cost and return analysis of beekeeping in the study area. Descriptive statistics and gross margin analytical tools were utilized to analyze the data. The result revealed that majority (93.1%) of those who participated in beekeeping where males and only 6.9% were female, 69% of the respondent were married while 31.0% were singles. All the respondents 100% got their hives themselves. 100% of the respondent harvest honey, 74.4% of the respondent harvest Beeswax and other bee product for commercial purposes. The average variable cost and gross return were ₦2,927 and ₦11,152.65 respectively. The gross margin was ₦8,265.09; major constraints faced by the respondents were inadequate capital, Bee aggressiveness, theft, marketing, landownership and lack of modern equipment.

INTRODUCTION

Agriculture is one of the oldest profession in the world, from creation to date the profession has undergone various metamorphosis from food gathering to organizing of agricultural practices which require man to select crops and animal for domestication and rearing. Collecting honey from the wild is one of the early agricultural activities. According to National (1996) Bee *Apis mellifera* is a species introduced into the northern America by early English and Spanish settlers for use in beekeeping. Beekeeping is the culturing of bees for their honey and wax a common practice among rural dwellers in tropical country` especially forest zones. Honey has a long and distinguished history in the human diet. For thousands of years honey hunters had plundered the hives of wild bees for their precious honey and beeswax, the practice still common today. The most widely used honey bees are the European *Apis mellifera* which have now been introduced worldwide. Tropical Africa has a native *Apis mellifera*, which is slightly smaller than European *Apis mellifera* and is most likely to fly off the comb and sting. They are most likely to abandon their hives if disturbed and in some areas the colonies migrate seasonally.

Apiculture (Beekeeping) is the maintenance of bee colonies for the commercial production of honey and other bee products and for use in cross pollination of crops. According to Nwali (1996), beekeeping is a science of rearing honey bees for man's economic benefits. Beekeeping is the art of managing colonies population so that the maximum number of bees is available for a task at a particular time. Apiculture is concerned with the practical management of social species of honey bees which live in large colonies of up to 100,000 individuals comprising of single group (Honey Bees, 2011). Reinhard (1995) confirms that honeybees can thrive in vegetation whose annual rain fall ranges from 50mm-350mm. The bee *Apis mellifera*(Dominant species in Nigeria) visits many flowers of native trees, shrubs and herbaceous plants.

Among the trees visited are *Vitelaria paradoxum*(Shea butter),*Danielia oliverii*(maje),*Khaya senegalensis*(mahogany)and *Ziziphus spina-christi*(kurna).The shrub visited include *Anonna senegalensis*, *Mimosa invasa and Giuera senegalensis*, while herbaceous plants visited consist of *Tridax procumbens*, *Aspilia Africana* and *Accanthospermum hispidium*(Marieke, 1991).Recently Beekeeping Association of Nigeria (BAN) requested the Federal Environmental Protection Agency (FEPA) and the Department of Forestry for assistance to establish national apiaries in all the state in Nigeria so as to facilitate the training of trainers to sustain such apiaries across the country. The ultimate goal was to make a beekeeper out of every Nigerian in order to expand production. Beekeeping is being introduce to various part of Nigeria including Nasarawa state, the common African honey bee (*Apis mellifera* and *Adansonni*), live throughout the year in colonies consisting of a queen or mother bee, which is a fertile egg laying female;

10,000 to 200,000 worker bees, which are infertile female and the male bees called drones that may be present in colony only during the reproductive season (Marieke, 1991).

In Asia there are three main native tropical species, *Apis cerana, Apis dorsata, Apis florae*. *Cerena* is the only species that can be managed in hives, but the single combs of the other two are collected by honey hunters. Bees are insect found in the order hymenoptera in the family *Apidae*, there are 20,000 named species of bees in sub Saharan Africa, there are over 3000 species of bees, mainly endemic in the tropical and savanah region. The most important species of the African bees are the African apida (apis) which are the stinging and the stingless (triagoma) honey bees (Eisa and Roth, 2008). However within the genus *Apis mellifera* species is the most useful species of bees and that is because of its appreciable honey production capacity. Record have shown that honey have been exploited for thousands of years as they are capable of collecting nectar, that is then being converted into honey and stored as a source of food for the colony. Only few species of bees exhibit a high level of social development and live together in a colony headed by an egg laying queen who may be the mother of the entire colony (Bees and Livelihood, 2003) Honey bees are kept in large cities and villages, farm lands and range lands, in the forest and the desert from the arctic and Antarctic to the equator (Bees and Rural Livelihood, 2003) provided that there is an optimum source of nectar, pollen and water.

Beekeeping is a sustainable form of agriculture which is capable of providing food, income, health and environmental benefit to mankind especially the rural poor populace. Bees provide more than just honey, other products like bee wax, propolis, royal jelly, bee venom and pollen are also obtained from a bee hive. Bees also provide

environmental service through pollination and cross pollination of flowering plant thus, indirectly maintaining biodiversity. Many traditional beekeepers in the tropical region used log hives, basket, mud-pot, bark and many materials that cannot be opened for inspection of the colony. All this hives mentioned above are either placed on the hilltop or on the tree branches, However they have their limitations, some of the constrains are due to the fact that the honey is harvested using hot fire which kills a lot of the bees in the process and occasionally destroy the hive itself. The honey harvested tends to be of low quality due to ashes and debris from the fire, in certain cases the brood (young bees) are mixed up with honey and the honey sometimes boils during extraction and therefore lowering the quality significantly which makes the honey adulterated. In line with this Adejare (1984) observe that honey that is collected from a hollow trunks, abandoned anthills and from crevices is seldom of high quality and the method is less efficient.

Yusuf (1998) also noted that beekeeping on a small scale does not involve much capital. He opined that the only initial expenditure needed is for the purpose of construction of beehive and purchase of beehive tools, therefore a small expenditure is needed for maintaining the hives.

Statement of the Problems

The demand for honey and beehive products is constantly on the increase, primarily due to its variety of use for homes, local and industrial purposes. Bee wax for instance has more than 300 different industrial uses (Apiculture, 2009), while royal jelly is the most expensive and scarce hive resources. Eventually beekeeping is said to be lucrative and rewarding enterprise to invest in, the general fear of bee stings and the dangers involved in beekeeping has being the major contributing factors that hinders people from engaging in beekeeping. It is however important to note that beekeeping provide more than just honey for local / home consumption and marketing to earn money, honey and beehive

products are as well utilized to generate foreign currency through export trade (Bees and Livelihood, 2003).

Beekeeping is probably not well recognized by rural farmers in Lafia. Lafia local government is fairly blessed with abundant vegetation including natural and grown crops. This makes it a potential and favourable environment for bees to inhabit.

Objective of the Study

The objective of this research is to:

1. Undertake a socio-economic analysis of beekeeping in Lafia local government of Nasarawa state and to describe the socio-economic characteristics of beekeepers in Lafia local government area.

2. Identify the materials used for beekeeping in the study area, describe the beekeeping management practices used by farmers in the study area.

3. Determine the cost and returns and profitability of the traditional method of honey production in the area and identify problems encountered by beekeepers in the area.

4. The study intends to highlight the beekeeping practice in Lafia local government area of Nasarawa State.

The research also give a clearer picture of what role the honey beekeeping practices play in improving the standard of living of the people. The study reveals possible increase in farm productivity (crop yield) as a result of beekeeping practices integrated in to farming. The benefit derived will be of good use to agricultural development in the state, so as to take the necessary steps in improving the living standards of the farmers in the state, the findings of this study will also contribute to knowledge and serve as reference point for further research.

MATERIALS AND METHODS

Experimental Site

Lafia local government area is located in Nasarawa south senatorial zone of Nasarawa state. It is located within the latitude 08^0 29^0 and latitude 8^0 31^0 East of the equator with an altitude of about 181.5m above sea level (LLGIU, 2010). Lafia Local Government shares boundary in the southwards with Obi local government area and westwards with Doma Local Government. The occupations of the people in the area are mostly farming. Lafia Local Government has a population of 330,712 people (Census, 2006).

Sampling technique

Beekeepers in the study area constitute the target population for the survey. A total number of twenty nine beekeepers were selected for the survey due to limited number of beekeepers in the study area.

Data collection

Data collection was through the aid of structured questionnaire and personal interview conversation. The data was based on the production season.

Analytical Technique

The analytical technique employed are simple descriptive statistics for objective 1, 2 and 4 of the study and budgetary technique (Gross margin) was used to satisfy objective 3 of the study.

Simple Descriptive Statistics

This analytical tool was used to satisfy objective 1, 2 and 4 of the study using frequency counts, mean and percentage.

Budgetary Technique

The budgetary techniques used in this study is to satisfy objective 3, Gross Margin analysis. This tool was useful planning tool for this study because the fixed capital variable cost was considered negligible. Most of the beekeepers in the study area are operating on a small scale using simple tools and materials locally sourced within their environment for production (beekeeping). The gross margin was calculated on per hive basis from the equation:

GM = GR - TVC

GM/hive = GR/hive – TVC/hive

Where GM= Gross margin

Gross return (GR) = Total output x unit price of output

Total variable cost =cost of labor, cost of bait, cost of smoking material, cost of fuel

RESULTS

TABLE 1:DISTRIBUTION OF RESPONDENTS ACCORDING TO THEIR SOCIO-ECONOMIC CHARACTERISTICS

VARIABLES	FREQUENCY	PERCENTAGE
SEX		
Male	27	93.1
Female	2	6.9
TOTAL	**29**	**100.0**
AGE GROUP		
15—20	2	6.9

21-30	10	34.5
31-40	8	27.6
41-50	4	13.8
51 And Above	5	17.2
TOTAL	**29**	**100.0**
MARITAL STATUS		
Single	9	31.0
Married	20	69.0
Divorce	-	-
TOTAL	**29**	**100.0**
EDUCATIONAL LEVEL		
Primary	2	6.9
Secondary	12	41.4
Tertiary	-	-
Non-formal	14	48.3
Adult education	1	3.4
TOTAL	**29**	**100.0**
HOOUSEHOLD SIZE		
1-5	5	17.2
6.10	18	62.1
11 And Above	6	20.7
TOTAL	**29**	**100.0**

TABLE 2:DISTRIBUTION OF RESPONDENTS ACCORDING TO EXPERIENCE IN BEEKEEPING, SOURCE OF INFORMATION, MEMBERSHIP OF BEEKEEPING ASSOCIATION, AND ACCESS TO CREDIT AVAILABLE .

VARIABLES	FREQUENCY	PERCENTAGE
EXPERIENCE IN BEEKEEPING,		
1-5	3	10.3
6-10	15	51.7
11-15	10	34.5
16 And Above	1	3.4
TOTAL	**29**	**99.9**
SOURCE OF INFORMATION		
Printed materials	1	3.4
Beekeeping association	11	37.9
Non-printed material	17	58.6
TOTAL	**29**	**99.9**
MEMBERSHIP OF BEEKEEPING ASSOCIATION		
Member	20	69.0
Non-Member	9	31.0
TOTAL	**29**	**100.0**
ACCESS TO CREDIT		
Local lenders	26	89.7
Agricultural bank	-	-
Commercial bank	-	-
Loans and thrift	3	10.3

TOTAL	**29**	**100.00**

TABLE 3:DISTRIBUTION OF RESPONDENTS ACCORDING TO TYPES OF HIVES USE, TYPES OF HIVES OWNERSHIP, OTHER BEEHIVE PRODUCTS, AND QUANTITY OF HIVES POSSESS**.**

VARIABLES	FREQUENCY	PERCENTAGE
TYPES OF HIVES		
Local	13	44.8
Top bar	14	48.3
Langstroth	2	6.9
TOTAL	**29**	**100.0**
TYPES OF HIVES OWNERSHIP		
Self	29	100
Rent	-	-
Lending	-	-
Inheritance	-	-
TOTAL	**29**	**100.0**
OTHER BEEHIVE PRODUCTS		
Bee wax	**29**	**100.0**
Propolis	-	-
Pollen	-	-
Royal jelly	-	-

Bee venom	-	-
TOTAL	**29**	**100.0**
QUANTITY OF HIVES POSSESS		
1-20	3	10.3
21-30	8	27.6
31-40	8	27.6
41 and Above	10	34.5
TOTAL	**29**	**100.0**

TABLE 4:DISTRIBUTION OF RESPONDENTS ACCORDING TO REASON FOR HONEY HARVEST, MONTH OF HARVEST AND QUANTITY OF LITERS HARVEST

VARIABLES	**FREQUENCY**	**PERCENTAGE**
REASON FOR HONEY HARVEST		
For consumption	3	10.3
For commercial purpose	21	72.4
As hobby	5	17.2
TOTAL	**29**	**99.9**
MONTH OF HARVEST		
March	10	34.5
April	10	34.5
November/December	9	31.0
TOTAL	**29**	**100.0**

QUANTITY OF LITERS HARVEST			
1-10		2	6.9
11-20		8	27.6
21-30		9	31.0
31 and Above		10	34.5
TOTAL		**29**	**100.0**

TABLE 5: CONTRAINTS FACED BY THE BEEKEEPERS IN THE STUDY AREA**.**

S/N	VARIABLES	PERCENTAGES
1.	Land Ownership	10.3%
2.	Lack of Technical Assistance	6.9%
3.	Bush Burning	6.9%
4.	Lack of Modern Equipment and Technology	10.3%
5.	Inadequate	6.9%
6.	Bee Aggressive	13.8%
7.	Swarming/Absconding	3.4%
8.	Theft	13.8%
9.	Pest and Disease	3.4%
10.	Marketing	10.3%

TABLE 6: INPUT AND OUTPUT LEVEL OF HONEY PRODUCTION

ITEMS	MINIMUN	MAXIMUM	MEAN
INPUT			

Hive			
Labor(m/hrs.)	7	78	31.75
MISCELLANEOUS			
Fuel(liters)	0.30	3	1.18
Match			
OUTPUT			
Honey yield(liter)			
	1	7	4.33%
	1	3	1.71%
	10	75	93.96%

283

284 **TABLE 7:** COST AND RETURNS ANALYSIS

S/N	COST ITEMS/HIVE	AVERAGE/COST NAIRA	PERCENTAGE (%)
1	**Variable cost**		
a	Labour	1186.20	40.52
b	Baiting materials	1131.03	38.64
c	Smoking materials	162.06	5.52
d	Transportation	448.27	15.32
2	**Total Variable Cost**	**2927.56**	**100**

3	**Gross Return**	**11152.65**	
4	**Gross Margin**	**8.265.09**	

DISCUSSION

Distribution of respondents according to socio-economic characteristics

Socio-Economic Characteristic of Respondents. The socio-economic characteristics of the respondents collected were based on sex, age, marital status, household size, educational level. Table 1 shows the sex distribution collected of the respondents in the study area, this indicates that majority 93.1% of those who participated in beekeeping were males and only6.9% of the respondents were female. The low participation of females in beekeeping could be due allergies, fear of being stung, religious or cultural belief of the people in the area. Table 1 reveals that 34.5% are aged 21-30years, 27.6% are aged 31-40 years,13.8% are between 41-50 years, 51years and above has 17.2% and 15-20 years with6.9%. Table 1 further shows that 69.0% of the beekeepers were married while 31.0%of the respondents were single; it indicates that married persons are fully involved in beekeeping than those who are single. 48.3% of the respondents have non-formaleducation, 41.4% have attended secondary school, 6.9% have attended primary andwithin3.4% attended adult education. The household is predominantly 62.1% range6-10 family members, 20.7% range between 11and above while 17.2% range within 1-5.

Distribution of respondents according to experience in beekeeping, source of information, membership of beekeeping association and source of credit.

Majority of the respondents had their experience within 6-10 years with 51.7%, 34.5% within 11-15 years, 10.3% within 1-5 years, 15 and above within 3.4%. From these, it shows that people that have been in beekeeping business for 6-10 years are having the highest percentage. This gives us the estimated period that people are aware of the beekeeping in the area. The long period of experience might have resulted in acquisition of many skills in the production. On the other hand, only 3.4% of the respondent get information from printed materials, 37.9% gets their information from beekeeping association, non-print material have 58.6% which have the bulk of respondents. Memberships of beekeeping association shows majority were 69.0% were members of the co-operative society, while 31.0% were not. It also enhance the improvement of the social and domestic condition of its members by raising a sufficient amount of capital(loan) to bring co-operative to establish a self-supporting home colony of united interest for members and provide employment for the unemployed members. In terms of credit accessibility, 89.7% of the respondents source their credit from local lenders including friends and family, 10.3% from loans society.

Distribution of respondent according to types of hives use, types of hives ownership, other beehive products, quantity of hives possess.

Indicates that majority of beekeepers uses Top bar, 48.3%, local hive like basket, baked clay and barrel tanks, 44.8% and langstroth users have 6.9%.Table 3 indicates that 100% of the respondent got their hive by themselves. Rent, lending and inheritance have nothing. 100% bee wax, propolis, pollen, royal jelly and bee venom have nothing. 34.5% of the respondents own between 41 and above beehives, 27.6% and 27.6% possess 21-30 hives and 31-40 hives, while 10.3% possess 1-20 hives. In the aspect of hives types, it indicates that most of the hives use is top bar, mostly constructed timber plank boxes.

Distribution of respondents according to reason for honey harvest, month of harvest and quantity of liters harvested.

Shows that 72.4 % of the respondent's harvest honey bee for commercial purpose, implying that the vocation could yield enough returns to keep people in the business, 17'2% as hobby and 10.0% claimed to harvest in November and December. 34.5% of the respondent produce 31 and above liters of honey, this is small considering the fact that they can only harvest once or twice in a year, however since they operate small farm size the output is expected to be small the quantity of honey a farmer may realize from his apiary depends mainly on the number of hives and the period of harvest, 31.0% of the respondents harvest 21 to 30 Liters, 27.6 of the respondents harvest 11 to 20 liters and lastly 6.9% harvest 1-10 liters of honey.

DISTRIBUTION OF CONSTRAINTS FACE BY RESPONDENTS IN HONEY BEEKEEPING.

Inadequate Capital

Majority (13.8%) of the respondents attributed their problem to lack of funds. Despite the profit in the enterprise the beekeepers use the profit earned to produce arable crops and to sponsor some of their wardens to school. Most of the profit earned is used by the beekeepers to satisfy their safety needs.

Land Ownership

Only (10.3%) of the respondents reported land as a constraints, among the problem is small size land holding and insufficiency of large trees on the land to place the beehives on them.

Lack of technical assistance

Table 5 shows (6.9%) of the respondents reported lack of technical assistance.

Bush burning

Bush burning is one of the major problem of the respondent with (6.9%) were affected with bush burning, fire outbreak drives the bees from their hives which reduce productivity.

Lack of modern equipment and technology

This is another major problem faced by the respondents with 10.3%, they complain of lack of equipment like, honey extractor, smoker, bee suit etc.

Inadequate information

The Table 5 shows that 6.9% of the respondents reported inadequate information as one of the problem the encounter in the study area. The complain of inadequate information regarding handling, management of bee products.

Bee aggressiveness

13.8% of the respondent experiences this problem, the table 5 shows that bee aggressiveness is also a serious problem among the respondents in the study area. They complain that bees usually stings them several times whenever they are working on the hives and sometimes the bees eventually chase them from the hives when the sting becomes unbearable.

Swarming / Absconding

Result from table 5 indicates that swarming and absconding is not very serious problem during the study. 3.4% of the respondents experience such problem. However the respondents reveal that the bees usually live their hives if the hives is frequently been vandalize or disturbed by

strange and unknown persons or mostly by bush fire or illegal lumbering of the trees where the hives were placed.

Theft

The table 5 shows 13.8% of the respondents have problem of theft of honey from the hives is a serious problem and affect majority of the respondents. Theft is increase in the prevalent because the hives are mostly in the farm far away from the beekeeper, thus residing the hives unsecure from illegal exploitation.

Pest and disease

It shows 3.4% of the respondents are experiencing problems of pest and disease. The only case they could observe is dead bees which may result from the action of insect lethal agrochemical sprayed on crops.

Marketing

Table 5 shows that 10.3% of the respondents in the study area experience problem of marketing among the respondents. It was discovered that only few people were engage in beekeeping in the study area, however, marketing is not expected to b a problem because there are many buyers and producers.

Input-Output Level in Honey Beekeeping

The input used for beekeeping in the study area include; beehive labor, baiting materials, smoking materials and miscellaneous. While the output consider was honey yield (honey output).

Hives

These represent the total number of hives per respondents 921 units, the maximum number of hives used by the respondent was 78 units and minimum number of hives used was 7 units and the mean of which was 31.75

Labour

Labour input on the bases of man hour was adopted for the study. The total labour utilized by the respondents comprises mainly of family members will rather take advantage of using family members for labour rather than giving out scarce capital out as a wages to hired labour personnel. The maximum labour utilized hive was 3 hours and the minimum is 0.30 hours, while the mean time was 1.18hours

Baiting Materials

Baiting materials used by the respondents was cow dung mixed with leaves it will be difficult to determined level of use of this input used by the respondents because the material were sourced locally and they do not have an appreciable (commercial value) quantity or size.

Smoking Materials

Smoking materials used are relatively cheap materials sourced locally. Some of the materials used for smoking materials are cow dung and dried grasses. These materials are needed in minute quantity thus the unit required for a hive will be difficult to determined because it is almost negligible.

Miscellaneous Materials

This comprises of materials that are also included in the variable cost items. They include fuel for fueling motor cycle to and fro the farm and matches for igniting fire for smoke. The maximum of seven (7) liters, minimum of 1 liter and an average of 4.33 liters of fuel, and the

maximum of three (3) boxes, minimum of one (1) box and an average of 1.71 boxes of matches was used by the respondents

Honey Output

This represents the total quantity (liters) of honey harvested per hive by the respondents. The maximum honey yield per hive was 75 liters the minimum yield was 10 liters and the mean output was 93.96% liters per hive harvested by the respondents in beekeeping.

Cost of Production

During the compilation of the total cost of productions, it was assumed that fixed cost was negligible in the computation because the respondents operate their beekeeping on a local level of production using locally sourced materials, including the hives which are mostly backed clay hives and baskets.

Cost of Labor

Family members were utilized as laborers by all the respondents in the study area and no wage is awarded to them by the beekeepers rather their wages are paid indirectly by feeding them. However, labor cost was based on the opportunity cost principle. The average cost for labour of the respondents per hive was computed to be ₦ 1,186.20/ hive

Cost of Baiting Material

Baiting material used by respondents are usually sourced locally the baiting materials have neither fixed price nor unit ratio. The average cost of bait used by the respondents was found to be ₦ 1,131.03/hives.

Cost of Smoking Materials

Smoking materials used by the respondents during the study are also local materials (Dried cow dung, coconut husk, and maize cob). The cost of sourcing for the materials was assumed to be the main cost. The average cost of smoking materials per hive was estimated to be ₦162.06.

Cost of Transport

Transportation is very important in the production of honey; the total cost of transport fair of the respondents was estimated to be ₦448.27.

Total Variable Cost

Total variables cost was obtained by the summation of all the variable cost which is cost of labour, baiting materials, smoking materials and transportation. An average of ₦ 2,927.56 was estimated for the total variable cost.

Average gross return

The average gross return of the respondents was obtained from the product of the average total annual yield of honey/hive/liter (7.96 liters) and the average cost of honey/liter(₦296,122.5) while the annual gross return was ₦11,152.65.

Gross Margin

This represents the difference between the value of the gross return per hive and the total variable cost per hive. The result in Table 6 shows that the gross margin of ₦28, 265.09/hive was obtained by beekeepers in the study area. This indicates that beekeeping is a very lucrative enterprise in the study area.

The most severe constraints face by the respondents are lack of modern equipment/ technology, inadequate capital, inadequate information, theft, swarming/ absconding and bee aggressiveness.

The finding from the study revealed that the majority of the respondents in the study area are local beekeepers basically using local ideas of beekeeping. Average cost of ₦ 11,31.03 and ₦ 162.06 were incurred on baiting and smoking materials for each hive. Average cost of ₦ 52.06 and ₦ 3.15 were obtained as the average cost of fuelling and matches respectively for each hive. The total variable cost obtained was ₦ 2,927.56/ hive and the gross return was ₦ 11, 152.65 at a unit (liter). While the gross margin was ₦ 8,265.09/ hive.

Conclusion

A significant potential exist in Beekeeping in Lafia Local Government Area owing to the availability of abundant natural vegetation and cropped plants. The availability of nectar and pollen sources are rest assured. The major factors that significantly influence the output of honey production in the study area is the number of hives owned by the Beekeeper that is the volume of production of honey increase with increase of the total number of hives owned by a Beekeeper provided, the hive are colonized. However increased productivity in Beekeeping in the study area can translate to improvement in the socio-economic status of the Beekeepers. Moreover, less time is spend working on beehives compare to the time spend in working on a crop field, that is more time can be saved for doing other productive activities.

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