

Full Length Research Paper

An assessment of profitability of honey production in Edo State, Nigeria

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This research work was carried out to analyze profitability of honey production in Esan North East LGA of Edo State Nigeria. The specific objectives of the study were to examine the socio-economic characteristics of honey production, examine the costs and returns of honey production, access the profitability and problems facing honey production. Questionnaire was administered on 50 randomly selected respondents in five (5) communities within Edo North Local Government area. Ten respondents were selected from each community. The data were analyzed using descriptive statistics (frequency tables and percentages) and gross margin analysis. The obtained results showed that the majority (98%) of the respondents were male, 100% of the respondents were married and were literate. The study further revealed that 76% of the respondents had less than 5 years of experience. There is no adequate link between the extension workers and the honey producers as only 6% of the respondents were visited by the extension workers. The estimated net profit was ₦58,864 per honey producer and was considered relatively high. The cost of hive, lack of fund, absconding of bees, effect of whether, infestation and lack of flowering plants were the major problems encountered in honey production. It was recommended that government should assist interested worthy bee farmers with loan or provide necessary materials at subsidized rate.

Key words: Socio-economics, honey, bees, profitability.

INTRODUCTION

Keeping honey bees is very essential for man's benefit. Traditionally, honey bees are kept in many countries where they are used for many purposes. However due to the low production technology being employed, Africa has the lowest yield per colony when compared with other continents, for instance the Oceania had an average yields of 39 kg FAO, 1996. North American and USSR each had an average of 24 kg while American had an average yield of 8 kg per colony in 1984 (FAO, 1996).

As reported by USDA (2007) honey is a mixture of different compounds including; sugars mainly fructose and glucose, other carbohydrates, water, trace amount of vitamins and minerals, and other compounds. Moreover, honey has religious significance, as the Hebrew Bible contains many references to honey (FAO, 2005). In the book of Judges for example, Samson found a swarm of bees and honey in the carcass of a lion (14:8) while

the book of Exodus famously described the Promised Land as a land flowing with milk and honey (33:3).

According to Animene (2007) honey is produced by honey bee workers mainly from the nectar of flower or honey dew on leaves, bark of trees etc. Thus honey is defined as "The nectar and saccharine exudation of plants, gathered, modified and stored as honey in the comb by honey bees (*Apis mellifera*). The recently estimated annual honey production was over 2000 tones, yet Nigeria's productions appear to be insignificant as it was not recognized by the Food and Agriculture Organization (FAO, 1996). To boost honey production

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and make it a means of livelihood in the nation, there is the need to improve or modernize the technology of honey production.

The fact that beekeeping can alleviate poverty in Nigeria cannot be over emphasized. Beekeeping can boost incomes particularly in the rural communities and benefit the country's economic situation. Beekeeping provides an excellent service for farmers by crops pollination as honey bees are the main pollinator for most plants. Honey is widely consumed with many medical values and beeswax has a number of individual uses. Trader in bee products has gained grounds. However despite this enormous potential, not enough has been done to earn its production.

Other benefits of bee keeping include cheapness as the insects can produce their own food all year round, availability of all necessary input locally can easily be initiated on limited level for employment and income generation, does not depend on importation of foreign equipments or inputs, the availability of technologies in the rural localities, readily availability of markets for bee keeping both locally and abroad. Many uses of honey according to Issa (1999) include pollination of flowers for food increases, production, bee wax is used in the manufacturing of cosmetic candles, foundation sheet (for houses), polishes, propolis produced by honey bee has some therapeutic and antibiotic usage, pollen is used for making of perfumes, bee venom is useful for treatment of rheumatism, eye and skin diseases while royal jelly is used to cure infertility and dressing wounds.

According to Anineme (2007); honey is so much in use and consequently in demand that it can be termed a money spinner. Apart from being delicious and nutritious, it has been found useful in many industries especially for pharmaceutical purpose. Beekeeping can rightly be seen as a liable key in reducing poverty and malnutrition. By keeping bees one can obtain a large quantity of honey and other products for home consumption and for commercial purposes.

Other benefits of bee keeping are the price of Nigeria honey ranges from ₦100,000 to ₦120,000 per ton. If Nigeria were to export 2,000 tones of honey produced annually, that will fetch the nation 200 to 240 million naira per year. This earning is expected to increase with increase and improved beekeeping in Nigeria (Edward 1971).

Based on the above, this research assesses the extent to which honey production could alleviate poverty especially under the modern beekeeping technologies. The study is to address the following questions. What are the contributions of beekeeping to the livelihood of other local people? What technologies are being used by beekeepers? How profitable is the honey production?

The general objective of the study was to analyze profitability of honey production in Esan of Edo State Nigeria. The specific objectives were to (i) examine the socio-economic importance of the honey bee to man (ii)

ascertain the honey production technology being used, (iii) identify the economic activities in beekeeping, identify and examine the socio-economic factors hindering increase production of honey in the study area.

MATERIALS AND METHODS

The study was carried out in Esan North East local government area of Edo State. Edo state was bounded in the north by Kogi State, in the west by Ondo State, in the south by Delta state and in the east partly by Kogi and Anambra state. Edo State is an agrarian state with oil palm, cassava, as the major crops cultivations with the annual rainfall ranging between 200 to 1200 mm (Anineme 2007).

Apart from arable crops, and livestock production in the area, *Milliferous flora* is common in the area under study. There are a lot of weeds climbers and ornamentals which are plants visited by the honeybees, the common tree plants include rubber, oil palm, cocoa, kola etc. apart from these, fruit trees like mango, citrus, guava etc. are scattered around the area which provide good flora for bees.

Sampling techniques

For purpose of this study five (5) communities were purposively chosen and from each ten (10) honey farmers were randomly selected making a total of fifty (50) respondents.

The beekeepers sampled were stratified on the basis of technology used, whether traditional or modern. The stratification of beekeepers is necessary because variables such as hive types and harvesting/processing equipment have important contribution to honey output. Simple random sample was used to select (10) respondents made of six (6) traditional beekeepers and 4 modern beekeepers in each community. This gave a total of 20 modern beekeepers and 30 traditional beekeepers in the study area.

Both primary and secondary data were collected for this study. The primary data were collected from the beekeepers by use of structured questionnaire designed to obtain relevant information regarding their honey production and marketing activities. Information collected include socio-economic variables like age of farmers, educational status, year of experience in beekeeping honey product output, number of colonies types and sources of beekeeping equipment, marketing system, cost and returns of honey production. Secondary data were collected via existing information from literature and previous studies. .

Data analysis

Simple descriptive statistics farm budget techniques and Gross margin analysis frequency, percentages and tables

Table 1. Socio-economic characteristics of Honey producers.

Gender	Frequency	Percentage
Male	49	98.00
Female	1	2.00
Total	50	100.00
Age		
40 – 44	22	44.00
45 – 49	25	50
50 – above	3	6.00
Total	50	100.00
House Size		
1 – 5 children	42	84.00
6 – 10 children	8	16.00
Total	50	100.00
Education Level		
Primary	30	60.00
Post Primary	16	32.00
Technical	4	8.00
Total	50	100.00
Major Occupation		
Farming	37	74.00
Public Service	12	24.00
Honey Production	1	2.00
Total	50	100.00

Source: Field survey, 2009.

Table 2. Distribution of the respondents according to economic characteristics.

Source of Credit	Frequency	Percentage
Personal Saving	41	82.00
Friends/Relatives	9	18.00
Total	50	100.00
Production Experience		
Less than 5 years	38	76.00
5 – 9 years	11	22.00
10 – 14 years	1	2.00
Total	50	100.00
Technology Use		
Traditional	30	60.00
Modern	20	40.00
Total	50	100.00
Quantity produced litres		
1 – 10 litres	27	54.00
11 – 20 litres	5	10.00
21 – 30 litres	12	24.00
31 – 40 litres	6	12.00
Total	50	100.00
Extension Workers Visit		
No. of farmers visited	3	6.00
No. of farmers not visited	47	94.00
Total	50	100.00

Source: Field survey, 2009.

were utilized. The farm income model is as shown:

$$\text{NFI} = \text{TR} - (\text{TVC} + \text{TFC})$$

Where:

NFI = Net Farm income for honey production in Naira

TR = Total Return on gross returns to honey production in Nigeria.

TVC = Total Variable Cost in Naira

TFC = Total fixed cost in Naira

The total revenue represent the honey sales and other hive products receipts while the total expenses (TVC + TFC) represent direct purchases for the beekeeping project. Total cost include fixed cost (e.g. rent on land, interest on borrowed fund, cost of hives, beekits etc.) and variable cost (labour, storage, bottles, sieve cloth, soft brush, straw hat, detergent, torchlight etc).

Gross margin: $\text{GM} = \text{TR} - \text{TVC}$

TR = Total Revenue.

TVC = Total Variable Cost.

RESULT AND DISCUSSION

The obtained results as regard the demographic and economic characteristics of the respondents are contained in Tables 1, 2 and 3. Table 1 shows the result on gender, age, household size, educational level and major occupation. It revealed that 98% of the respondents were males. This may be due to the nature of the vocation since the farmers are exposed to the risk of being stung by the bees for which the women fold may not be strong enough to withstand. About 90% of the respondents were within the age range of between 40 to 49 years. This indicates that all the respondents are still in their active age while the vocation is an emerging one for which the youth are attracted in order to generate income. This corroborates the views of Ikediobi et al. (2000). All (100%) of the respondents were married implying that the vocation is capable of sustaining families from the steady flow of income. Also 84% of the respondents had between 1 and 5 children in their households and all of them had one form of formal education or the other. This could afford them the

Table 3. Number of hives own, reason for honey production, months of harvest and problems encountered.

Number of hives own	Frequency	Percentage
2 – 4	27	54.00
5 – 8	19	38.00
9 – 15	4	8.00
Total	50	100.00
Reason for honey production		
For consumption	11	22.00
for commercial purpose	38	76.00
As hobby	1	2.00
Total	50	100.00
Months of Harvest		
March	10	20.00
April	35	70.00
November/December	5	10.00
Total	50	100.00
Problems encountered		
Absconding	8	16.00
Effects of weather	7	14.00
High cost of hive/lack of fund	25	50.00
Ants infestation	7	14.00
Lack of flowering plant	3	6.00
Total	50	100.00

Source: Field Survey, 2009.

opportunity to read literatures and adopt new innovations. Also 74% of the respondents were farmers who diversify into honey production to ensure optimum and continuous flow of income.

Table 2 shows the respondent claims as regard the source of credit, honey production experience, technology use, quantity produced and visits of extension workers. It revealed that 82% of the respondents depend on personal savings as source of credit while 18% depends on friends and relatives. This implies that all the respondents do not have access to formal credit. Also 76% of the respondents had less than 5 years of honey production experience suggesting that the business is relatively new in the study area. Further 60% of the respondents used traditional methods of honey production while 40% of them used modern technology. This conforms with earlier observation that because all of the respondents are literate, they would adopt new innovation with ease in order to produce at the optimum level. This view was in consultant with that of Iridi-Obi (2002). Furthermore, 54% of the respondents produce 1 to 10 L 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

Table 4. Result of gross margin analysis.

Variables	Mean
Number of producers	50
Total variable cost (TVC)	52,000
Total fixed cost (TFC)	440,000
Total revenue(TR)	786,320
Total cost (TC)	492,000
Gross margin (GM)	734,320
Gross margin/farmer	14,686.40
Net-profit	294,320
Net -profit/farmer	5,886.40

Source: Field survey, 2009.

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.

The findings further revealed that only 6% of the respondents claimed to be visited by extension workers. This implies that there is inadequate link between the extension workers and the honey producers.

Table 3 shows that 54% of the respondents have 2 to 4 hives. The reason for the small farm size could be attributed to the high cost of hive construction and their low capital. Also, 74% of the respondents claimed that they produced honey for commercial purpose implying that the vocation could yield enough returns to keep people in the business. Also, 70% of the respondents reported that they harvest their honey in the month of April, 20% harvested theirs in March while 10% of them claimed to harvest in November/December. From the same table, 50% of the respondents claimed that they face problems of high cost of hives and lack of fund, 16% face problem of absconding of bees, 14% each face problems of effects of weather and ants infestation while 6% face problem of lack of flowering plants. All of which hinder improved flow of honey.

Gross margin analysis

The detail analysis of gross margin in respect of the honey production is shown in Table 4. The result showed that the profit realized from honey production was relatively high and was economical to the honey farmers. The major reason for the high profit is the low variable cost of production input. This is in line with Awah (2002) that 70% of bees feed are from locally sourced materials that are not required by human beings for consumption and that cost of production of honey is relatively low. This makes honey production an attractive venture for those seeking for some enterprises to augment their income.

Given the farmers small scale production, this gross margin of 14,686.40 per farmer and net profit of 5,886.40 could be described as attractive; hence the return is a profitable one.

CONCLUSION

Honey production was profitable in the study area with a gross margin of ₦14,686.40 per farmer. The major problems are high cost of hires, lack of fund, abscondment of bees, effects of ant infestation. Also lack of flowering plants encountered in beekeeping/honey production should be looked into and solutions proffered to them if continuous production and food to be achieved. The problems of ant infestation should be controlled through personal effort by the beekeepers by way of good management practices including hygiene. There should be adequate links between the extension agents and the farmers who keep bees so as to improve their skill and keep them abreast of recently developed technologies.

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