

## Economic Analysis of Modern Honey Production in Ibarapa East Local Government Area of Oyo State

Afees Babatunde Adeniyi<sup>1+</sup>, Olufunmi Amao<sup>2</sup> and Saidat Adebola Adeyemo<sup>3</sup>

<sup>1, 2, 3</sup>Department of Agricultural Technology, Oyo State College of Agriculture, P.M.B. 10, Igboora, Oyo State.

**Abstract.** This study was conducted in order to determine the profitability of modern honey production in Ibarapa East Local Government Area of Oyo State, Nigeria. Fifty (50) honey producers were selected using multiple random sampling methods while well-structured questionnaires were administered on them. The data collected was processed using a combination of descriptive statistics, budgetary techniques and regression analysis.

The linear regression analysis revealed an adjusted R<sup>2</sup> of 0.94 which implies that the fitted explanatory variables explained 94% of variation in the endogenous variable. Also, the major problems being encountered by bee farmers include: lack of access to credit facilities, lack of marketing facilities and theft. It was also revealed that modern techniques of honey production is environmental friendly as it prevents fire hazard that could result from using of fire for harvest under traditional method.

It is therefore suggested that unemployed youths should engage in honey production as a sustainable and profitable means of livelihood.

**Keywords:** Honey Production, profitability, regression

### 1. Introduction

Traditional way of beekeeping has been in existence for long (Pokhrel, 2008) [1]. In the early times, beekeeping was no more or less a form of honey hunting. There was no management of the hives. The bees were simply driven out with smoke, killed with fire at the end of the flowering season and the honey with the beeswax taken (Siyanbola, 2003) [2]. This crude method of bee hunting has created a reduction in the quantity and quality of honey being produced (Ebojei, *et. al*, 2008) [3]. But, however they are disappearing due to the introduction of modern beekeeping (Stephen, 2003) [4]. Modern beekeeping (Apiculture) involves the use of modern techniques to produce honey and other hive product such as royal jelly, bee venom, propolis, wax etc. (Corby, 1994) [5]. Also, modern beekeeping method requires low capital, it is very easy to learn, it consumes less time and it can be practiced as a small-scale sustainable agriculture as it only require a very small portion of land (Belie, 2009) [6]. It has been scientifically confirmed that honey is very useful in treating many disease e.g. diabetes, Asthma, High blood pressure, disserve, infertility ulcers, lungs, skins, burns, snake's bite, throat sore e.t.c (Gidey, *et. al*, 2010) [7].

It is however paramount that people should be enlightened on the modern methods of beekeeping so as to bring increase in the level of honey production in the country and also to increase the number of people that engage in the business (Anyanwu, 1996) [8]. This study, therefore aimed to provide answers to the following questions:

- What are the cost and returns to honey production using modern method?
- What are the problems being encountered in modern beekeeping?
- What are the probable ways to improve level of production?

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<sup>+</sup> Corresponding author. Tel.: +238068935665  
E-mail address: [adeniyibabatunde44@yahoo.com](mailto:adeniyibabatunde44@yahoo.com)

Hypothesis of the study

H<sub>0</sub>: There is no significant relationship between selected personal characteristics of honey bee producers and revenue from honey production in the study area.

## 2. Methodology

### 2.1. The study area

The study was carried out in Ibarapa East Local Government Area of Oyo State. The state is situated in the western part of Nigeria. The State lies entirely in the tropics; it is among the forest zone state, though it has a derived savannah in its northern part. Ibarapa East Local Government has its headquarter situated in the town of Eruwa. It has an area of 838km<sup>2</sup> and a population of 118, 226 (NPC 2006) [9]. The inhabitants of the place are predominantly farmers. Crops grow in the area include yam, cassava, maize, e.t.c while they also rear livestock like goat, poultry, pigs, e.t.c.

### 2.2. Population of the study

All Bee farmers in the study area.

### 2.3. Sources and method of data collection

The study will use both primary and secondary data. Primary data was collected through the use of well-structured questionnaire from a sample of fifty respondents which were randomly selected from the local government areas. Data were collected on the demographic and socio-economic characteristics of the bee keepers. Snowball non- probability sampling method was first used to identify beekeepers in the study area, while simple random sampling was then used to select fifty respondents from the population of the beekeepers.

### 2.4. Analytical techniques

Descriptive statistics and budgetary analysis were employed as tools of analysis. Descriptive statistics such as table, frequency counts and percentages were used to analyze socio-economic and demographic characteristics of the respondents while budgetary technique was used to analyze returns to the factors of production.

$$G.M = \sum P_i Q_i - \sum C_j X_j$$

Where

GM = Farm Gross Margin i

P<sub>i</sub> = Market Unit Price of output i

Q<sub>i</sub> = Quantity of output j

C<sub>j</sub> = Unit cost of the variable input j

X<sub>j</sub> = Quantity of the variable input j

$$GM = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + \dots + e_i$$

$$GM = TR - TVC$$

## 3. Results and Discussion

### 3.1 Socio-economic characteristics of the respondents

The results of socio-economic characteristics of the honey producers analyzed as shown in the Table 1 below, revealed that about 64% of the respondents had access to some level of formal education while male respondents (82%) engaged in honey bee production than the females. Also, 48.00% of the respondents were full time honey bee producers while 52.00% of the respondents were part time honey bee producer. Majority of the respondents were married (82.00%). Also only 8% of the farmers in the study area used traditional method of beekeeping while 92% of the farmers used modern method of beekeeping. The study also revealed that most of the respondents were within the age bracket of 30-50 years which implies that they were in their active age. The result also indicated that majority of the beekeepers had 6-10 years of modern bee keeping experience.

Table 1: Distributions of Respondents by their Socio-Economic Characteristics.

| <b>Gender</b>                | <b>Frequency</b> | <b>Percentage (%)</b> |
|------------------------------|------------------|-----------------------|
| Male                         | 41               | 82.00                 |
| Female                       | 9                | 18.00                 |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |
| <b>Education level</b>       |                  |                       |
| Non formal                   | 18               | 36.00                 |
| Primary                      | 11               | 22.00                 |
| Secondary                    | 5                | 10.00                 |
| Tertiary                     | 16               | 32.00                 |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |
| <b>Marital status</b>        | <b>Frequency</b> | <b>Percentage(%)</b>  |
| Single                       | 9                | 18.00                 |
| Married                      | 41               | 82.00                 |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |
| <b>Farmers status</b>        | <b>Frequency</b> | <b>Percentage %</b>   |
| Full-time                    | 24               | 48.00                 |
| Part-time                    | 26               | 52.00                 |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |
| <b>method of beekeeping</b>  | <b>Frequency</b> | <b>Percentage %</b>   |
| Traditional                  | 4                | 8.00                  |
| Modern                       | 46               | 92.00                 |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |
| <b>Problem encountered</b>   | <b>Frequency</b> | <b>Percentage %</b>   |
| Theft                        | 6                | 12.00                 |
| Aggressiveness of bee        | 37               | 74.00                 |
| Lack of marketing facilities | 3                | 6.00                  |
| lack of credit               | 1                | 2.00                  |
| Lack of technical assistance | 3                | 6.00                  |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |
| <b>Primary Occupation</b>    |                  |                       |
| Trading                      | 7                | 14.00                 |
| Farming                      | 27               | 54.00                 |
| Civil servant                | 13               | 26.00                 |
| Others                       | 3                | 6.00                  |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |
| <b>Experience</b>            |                  |                       |
| 1-5                          | 18               | 36.00                 |
| 6-10                         | 23               | 46.00                 |
| 11-15                        | 5                | 10.00                 |
| 16-20                        | 0                | 0                     |
| 21-24                        | 0                | 0                     |
| 25-30                        | 4                | 8.00                  |
| <b>Total</b>                 | <b>50</b>        | <b>100.00</b>         |

Table 2: Regression result for profitability of modern honey production

| Socio-Economic characteristics | Coefficients | Standard Error | t Value |
|--------------------------------|--------------|----------------|---------|
| X <sub>1</sub>                 | 2.812983     | .1673651       | 2.81    |
| X <sub>2</sub>                 | 2724.636     | 5289.659       | 0.52    |
| X <sub>3</sub>                 | 39624.96     | 65892.46       | 0.60    |
| X <sub>4</sub>                 | -3386.078    | 15187.76       | -0.22   |
| X <sub>5</sub>                 | -22525.56    | 7634.625       | -2.95   |
| X <sub>6</sub>                 | 376183.1     | 115534.4       | -2.26   |
| X <sub>7</sub>                 | -3467.471    | 3816.21        | -0.91   |
| X <sub>8</sub>                 | 137489.3     | 73051.15       | 1.88    |
| (Constant)                     | -994163.6    | 279735.4       | -3.55   |

Source; computed from field survey, 2012

XXX (t>2.5), value significant at 1%

XX 1.95 – 2.45) value significant at 5%

<sup>x</sup>PC < 1.65 – 1.94) value significant at 10%      Adjusted (R<sup>2</sup>) 0.94

Also, from the result of regression analysis shown in the Table 2 below, R square of 0.94 implied that 94% of dependent variable (gross margin) was explained by explanatory variable fitted and the following explanatory variables: marital status (X<sub>2</sub>), credit obtains (X<sub>3</sub>), house hold size (X<sub>4</sub>), Age (X<sub>7</sub>), gender (X<sub>8</sub>) were found not to have any significant relationship with the dependent variable while total cost of input x<sub>5</sub>, Beekeeping experience X<sub>6</sub> and years of education X<sub>1</sub> significantly influenced the gross margin. Also, Theft, aggressiveness of bees, lack of marketing facilities, lack of technical assistance and lack of credit facilities were found to be the major problems being encountered by the respondents.

#### 4. Conclusion

From the foregoing, it is therefore imperative to conclude that modern beekeeping for honey production is profitable.

#### 5. Recommendations

Since, findings of this study have revealed that honey production is not only profitable but also sustainable, young school leavers should venture into honey production as a reliable source of job opportunities, in other to reduce the rate of unemployment in the country.

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