Economic Contributions of Honey Production as a Means of Livelihood Strategy in Oyo State

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ABSTRACT

Economic contributions of honey production as a means of livelihood strategy in Oyo state was examined with a view to describing the socio-demographic characteristics of honey producers; to determine the economic contribution and level of honey production in Iseyin-Ogbomoso Local Government Areas of Oyo State. Six (6) Local Government Areas were purposively selected for this study. Seventy three (73) questionnaires were administered to honey producers. Data were analyzed using descriptive statistical tools such as frequency distribution and percentage, while inferential statistics such as Gross Margin and Linear Regression were implored. The result revealed that 26% of honey farmers were females while 74% were male, this showed that honey production is male dominated and the people involved are in their active working age. R^2 value (0.5948) explaining almost 60% of the dependent variable, the overall P – value(0.0000) indicates the level of significance of explanatory variables at 1%. Positive co-efficient of educational level revealed that the higher the educational status, the higher the productivity and better management. The economic efficiency was 2.31 which implied that for every ₦1 spent to produce honey, in the study area 15.5 kobo was realized as profit. Honey business is however found to be lucrative.

Keywords: *Honey production, Economic contribution, Livelihood strategy, Rural area*

I.   INTRODUCTION

In recent years the production of honey through bee keeping has becoming popular among small scale farmers. This is because farmers have resorted to making income in diverse ways. Traditional beekeeping is a complementary farming activity with diverse socio-economic benefits to reduce the risk involved in depending solely on conventional crop and animal production as the only source of income (Olarinde, et al. 2008). Honey is a sweet food made by bees using nectar from flowers. The variety produced by honey bees (the genus Apis) is the one most commonly referred to and is the type of honey collected by beekeepers and consumed by human being. Honey produced by other bees and insects has distinctly different properties. Honey bees form nectar into honey by a process of regurgitation, and store it as a primary food source in honeycombs wax inside the beehive. In the hive, the bees use their "honey stomachs" to ingest and regurgitate the nectar a number of times until it is partially digested, the bees then work together as a group with the regurgitation and digestion until the product reaches a desired quality. It is then stored in honeycomb cells (Standifer, 2007).Honey production is undertaken because it provides both social and economic benefits to rural communities and has received primary attention from the farmers. Economic benefits are usually measured in monetary terms as income from employment in the sector while social benefits are reflected in the many local uses they offer to the communities ranging from honey being used as food and medicine for the treatment of various ailments such as cough, constipation, diabetes, sore, Bunning, indigestion and arthritis. Ojeleye (1999) reported that food, pharmaceutical, cosmetic as well as brewery industries depend on honey as part of their raw materials in the production of their commodities. For example, drugs, body creams, lip balm, confectionaries etc. USDA (2013) reported that honey is a mixture of different compounds including sugars mainly fructose and glucose and other carbohydrates, water, trace amount of vitamins and minerals and other compounds. Folayan et al (2013) reported that 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 saccharine exudation of plants" gathered, modified and stored as honey in the comb by honey bees (Apis mellifera).   Moreover, honey has religious significance as the Hebrew Bible contained many references to honey. 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 Promise Land as a land flowing with milk and honey (33:3)]. Bee keeping is seen rightly as a liable key in reducing poverty and malnutrition by creating jobs particularly for the unemployed youths and poor rural population.

Generally, honey production has been identified as one of the most lucrative enterprise in many parts of the world, so much in use and consequently in demand that it can be termed a money spinner. In the United States, for example, about 109,799,366.60kg of honey worth $24,200,000.00 is produced each year, Ethiopia is the ninth highest honey producing country in the world, with a total production estimated at

44,000 tonnes valued at US$76.6 (€57.6) million and is the largest producer and exporter of honey and beeswax in Africa. This means that bee products are very important as a source of foreign exchange (Canadian Statistics, 2003). The recently estimated annual honey production is over 2000tonnes, the price of honey in Nigeria range from ₦100, 000 to ₦200, 000 per ton. If Nigeria were to export 2,000 tonnes of honey produced annually, that would fetch the nation 200 to 240 million naira per year. This earning is expected to increase with improved beekeeping in Nigeria (Folayan, J.A and Bifarin, 2013), yet Nigeria's production appears insignificant as it was not recognized by the Food and Agricultural Organization. Improvement of honey production will be a sure way to adding value to the agro-forestry sector if food security situation and vision 2020 is to be fully realized and this can only be achieved where there is proper planning and adequate facts about the existing systems of production.

Livelihoods connote the means, activities, entitlements, assets by which people do make a living through natural or biological means (land, water, flora, fauna), social (community, family, participation, empowerment) and human resources (knowledge, creation of skills) (Terry,S and ousseynou,N.(2004). A livelihood is sustainable when it can cope with, and recover from, stresses and shocks and maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base. The sustenance of livelihoods could make significant contribution to alleviating or eradicating poverty (Terry,S and Ousseynou,N. (2004)**.** When apiculture forms part of people's livelihood strategies there are various possible outcomes. Some of these outcomes will include income and material goods, but also non-material outcomes such as well-being and contentment. In terms of apiculture, the least visible livelihood outcome is the pollination of flowering plants, both wild and cultivated: this is an outcome impossible to quantify. Honey is a traditional medicine or food in nearly all societies, whether sold in a simple way at village level or packaged more sophisticatedly. Honey generates income and can create livelihoods for several sectors within the society. In addition to their financial value, honey and beeswax have many cultural values and form part of ceremonies for birth, marriages, funerals, Christmas and other religious celebrations in many societies. Beekeeping tends to be perceived as 'a hobby', or as 'a sideline activity'. These descriptions may often be true, but a resilient livelihood – one that keeps people out of poverty – is one that has access to range of options. In this case, apiculture and related trades can be sources of valuable strength to countless number of rural people's livelihoods. Rather than just being a hobby, beekeeping could be seen as an important occupation and part of rural life worldwide. In rural communities where access to income is limited, small scale beekeeping can contribute significantly to livelihood security. Besides income, beekeeping also improves the health of practitioners and the general population. It has been medically established that beekeepers have better health than non-beekeepers. Therefore, beekeeping development can improve the health of rural poor people who cannot afford modern medical services where available. Since health is unarguably wealth, boosting the health of the rural poor

population through beekeeping is a practical way of reducing poverty. Beekeeping is also a veritable means of creating jobs particularly for the unemployed youth and poor rural population. In addition, bees have positive impact on the environment by ensuring balance in the ecosystems. The absence of bees will jeopardize the integrity of biodiversity, global food webs and human health, because they are not only indicators of biodiversity, but also effective monitors of the environment. To this end, this study seeks to determine the importance of honey production in relation to its economic contribution as means of livelihood strategy for honey producers in the study area.

II.   RESEARCH METHODOLOGY

Study Area

The study area is Oyo state. It lies between latitude 7^0N and 9^0E, longitude 2^0N and 4^0E and is geographically bounded by Kwara state to the North, Benin Republic to the West. The area is inhabited by about 1. 5million people according to the 2006 population census (NPC, 2006) with a total land area of 13,537 Km^2. Located in the south-west geopolitical zone of Nigeria; Oyo State was one of the three states carved out of the former Western state of Nigeria in 1976. Oyo State consists of 33 Local Government Areas. This research work was carried out in two district zones of the state, they are Ogbomoso and Iseyin. Ogbomosho is a city located in Oyo State. Ogbomoso North is the largest local government in the City, being the City's major economic center. It is the most populous Local Government in the City as at the 2006 census. Iseyin is a city located in Oyo state. It is approximately 100 kilometers north of Ibadan. The city is estimated to have a population of 236,000. The primary industry of the area is cotton-based textiles. It is also known as the Home of "Aso Oke".

Sampling Procedure

Purposive sampling technique was used to select the six (6) local government areas (Iseyin, Ogo Oluwa, Ogbomoso North, Ogbomoso South, Orire and Surulere), due to the intensity of honey producers relevant to the study. Forty (40) respondents were purposively selected in Iseyin LGA while thirty-three (33) respondents were selected in Ogbomoso, making a total of seventy-three (73) respondents.

Data Collection

Structured questionnaires and personal interview was used to collect data for the study. The questionnaires were designed to obtain information on the socio-demographic characteristics of the honey producers in the study area, their level of production, and economic contribution in terms of benefits that accrue to honey producers and sustainable livelihood strategies adopted by honey producers in the study areas.

Data Analysis

Data were analyzed using descriptive statistical tools such as frequency distribution and percentage to describe the socio-

demographic characteristics of honey producers and presented in the form of tables, while inferential statistics such as Gross Margin and Linear Regression were used to determine the economic contribution of honey production, level of production and livelihood strategy of honey production in the study area.

Gross Margin is given as:

GM = TR – TVC
NI = GM – TFC
R = TR (TFC - TVC)

Where

GM= Gross Margin, NI= Net Income, R= Returns, TR= Total Revenue, TVC= Total Variable Cost
TFC= Total Fixed Cost

Linear Regression Model is expressed as:

$E = f (x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8 e_0)$

Where

E= Level of Production
$x_1=$ no of hives, $x_2=$ years of experience, $x_3=$ primary occupation, $x_4=$ frequency of production
$x_5=$ technique of production, $x_6=$ type of hive, $x_7=$ choice of hive, $x_8=$ location of hive

III.   RESULTS AND DISCUSSION

Table 1: Socio-Economic Characteristics of Honey producers

Variable	Frequency	Percentage
Percentage		
Sex		
Male	54	73.97
Female	19	26.03
Total	**73**	**100.00**
Age		
<20	2	2.74
21-30	13	17.81
31-40	33	45.21
41-50	16	21.92
51-60	9	12.33
Total	**73**	**100.00**

Marital Status		
Single	10	13.70
Married	58	79.45
Separated	2	2.74
Widowed	3	4.11
Total	**73**	**100.00**
Religion		
Christian	31	42.47
Islam	39	53.42
Traditional	3	4.11
Total	**73**	**100.00**
Tribe		
Yoruba	58	
Hausa	6	8.22
Igbo	8	
Others	1	1.37
Total	**73**	
Educational Level		
None	2	
Primary	21	28.77
Secondary	33	
Tertiary	17	23.29
Total	**73**	**100.00**
Primary Occupation		
Yes	38	52.05
No	35	
Total	**73**	

Source: Field survey 2012

The table revealed that 74% of honey farmers were male while the remaining 26% were female. This implies that most of the honey producers were male and this may be attributed to the fact that the job is very tasking and challenging considering the mode of production and its attendant risks (such as bee sting forest hazards). It therefore justifies the reasons why honey production is a male dominated work. The mean age of the farmers was 35.5. About 65.76% of the honey producers were between 20 and 40 years of age. This implies that majority of the honey producers are in their very active age (30-40 age range) which adds a good advantage to the production level of honey in the study area. Marital status is directly linked with the producers' performance in that it affects their level of productivity. Married farmers can engage the family labour in carrying out some of the production operation. The Table showed the marital status of the sampled producers and indicates that the majority of them are married (79.45%), only

13.7% of the producers are single. The amount of labour rendered by the family put the production activities on a very good stead to produce in a larger quantity.

The result also showed that 42.47% of the respondents are Christians while 53.42% accounts for the Muslim population. Those producers that are traditionalists are minority accounting for 4.11% of the total population of the honey producers. This implies that people of the two major religions in Nigeria (that is Islam and Christian) actively participated in the production of honey probably due to their awareness on the importance of honey to both religion as revealed in the holy books. According to Matthew 3:4,"And the same John had his raiment of camel's hair, and a leathern girdle about his loins; and his meat was locusts and wild honey". John the Baptist is said to have lived for a long period of time in the wilderness on a diet consisting of locusts and wild honey. In Islam, there is an entire Surah (chapter) in the Quran called al-Nahl (the Honey Bee). According to Hadeeth Prophet Muhammad (PBUH) strongly recommended honey for healing purposes (Soheeh Bukhari vol. 7, book 71, number 584, 585, 588 and 603). Qur'an promotes honey as a nutritious and healthy food, and Your Lord inspired the female bee(s) saying: "Take your habitations in the mountains and in the trees and in what they erect, then eat of all fruits, and follow the ways of Your Lord made easy (for you)." There comes forth from their bellies, a drink of varying color wherein is healing for men. Verily, in this is indeed a sign for people who think". (Quran 16:68–69). The table further revealed that 45.21% of the honey producers had secondary education while 28.77% and 23.29% had primary and tertiary education respectively. This indicated that level of education is not a barrier to production activities. Rather, it suggests that education can only promote the productivity level and better management as people with no formal education were also involved even though they are very infinitesimal in the study area.

Tribal factor was not significant in the production of honey. The producers were cut across the three major tribes (Yoruba, Hausa and Igbo). Though, the study revealed that Yoruba tribe was the majority (79.45%).This may be due to the fact that the study was conducted in Yoruba land. Honey production can be taken as both primary and secondary occupations as shown in the study. The statistics of the respondents along the occupational status in the study area indicated that they are almost at equal percentages. 52.05% and 47.95% were for both primary and secondary occupations respectively. This therefore shows that the majority of honey farmers in the study area considered honey production as a primary occupation when compared to those other farmers that combine honey with other business.

Table 2: Result of the Budgetary Analysis

Items (₦)	Naira
Total Revenue	800,000
Average Hired Labour cost	54,000
Transportation Cost	15,000
Cost of Containers	15,000
Cost of Extractor (manual) and others per one	10,000
Cost of Smoker	9,000
Cost of Funnel	320
Cost of Bee Suit	10,000
Rent	30,000
Other Implements	2,600
Total Variable Cost	**145,920**
Gross Margin (TR – TVC = GM)	**654,080**
Total Fixed Cost	**95,500**
Profit = π = TR – (TVC + TFC)	**558,580**

$$\text{Efficiency Level} = \frac{\text{profit}}{\text{Total Cost}} = \frac{558580}{241420} = 2.31$$

Source: Field survey 2012

The budgetary analysis in Table 2 reveal that every honey sales on the average, would realize total revenue of ₦800,000 per production within the month. The total variable cost and the total fixed cost were ₦145,920.00 and ₦95,500.00 respectively. The economic efficiency for the honey business was therefore 2.31 which implied that for every ₦ 2 spent to produce honey in the study area, 31 kobo was realized as profit. Note that if the economic efficiency is calculated in per unit naira, it then means that for every ₦ 1 spent 15.5 kobo would be realized as profit. This therefore clearly shows that honey production activity is a profitable business in the study area. This agrees with such similar work carried out by Azeez et al (2012) in Ibadan metropolis where the economic efficiency for the honey business among honey producers in Ibadan metropolis was 1.41 which implies that for every ₦ 1 spent in producing honey,41 kobo was realized as profit. The knowledge gap in those two research works when put in comparison revealed that honey production is more lucrative in Ibadan than Iseyin-Ogbomoso areas. The reason may be due to the rate of turnover that characterized the honey business in Ibadan than in Iseyin-Ogbomoso areas. Other factors include; theft, cattle rearers invasion as a result of far distance of the hives location to the farm stead in the latter than the former.

Table 3: Regression result for factors that determine the level of production of honey

Variable	Standard Error	P-value	Co-efficient
Sex	.2924211	0.992	-.0031081
Age	.0128621	0.532	.0080874
Marital status	.205358	0.681	.0848795
Educational level	.3376362	0.026**	.1480817
Technique	.2645587	0.428	-.2111194
Hive type	.3111268	0.730	.1078508
Choice of hive	.049088	0.369	.0542694
Number of hives	.0281094	0.000*	.0040076

constant	2.379824	1.235051
	0.059	

Number of observation = 72
Prob > F   = 0.0000
R-squared   = 0.5948
Adj R-squared = 0.5205
Root MSE   = .91206

Source: Field Survey 2012
*Significant at 1%
** Significant at 5%

From Table 3 above, R squared value of 0.5948 explains the goodness of fit of the model used to analyze the data and it revealed that the explanatory variables explain almost 60% of the dependent variable, the overall P – value is 0.0000 which indicates the level of significance of explanatory variables at 1%. Other policy relevant variables were educational level and numbers of hives, both were significant at 5% and 1% respectively. Positive co-efficient of educational level revealed that the higher the educational status, the higher the productivity and better management. The same thing is applicable in the case of number of hives, the higher the number of hives, the more the quantity produced. This conforms to the principle of production function, that is, from a given production function, the point of maximum output and the quantity of input (hives) required to reach the maximum output can be determined. Hence, they require more number of hives.

IV.   CONCLUSIONS   AND RECOMMENDATIONS

Honey production in Oyo State, South West Nigeria is male dominated, and these people are still in their active working age. They are mainly literate with a moderate educational status. The respondent religious differential status cut across different religions bracket and average number of the sampled population took honey production as a primary occupation while substantial part of them combine it with another work considering it as a secondary work.. Education is found to be a significant factor that promotes the productivity level of honey production while the size and the number of the hives used as an important input for the production determines the quantity of honey produced.

Honey business is however found to be lucrative as it is revealed in the study that for every one naira spent in the process of production and marketing, not less than fifteen and half kobo is realized as profit. This is a very good opportunity for the honey investors to explore. To influence increase in production and its economic contributions to the livelihood of the honey producers in the study area, there should be paradigm shift of educational pyramid to the rural areas. This will no doubt will not only facilitate and boost the economic development of the rural population particularly the honey investors, but also encourage them to acquire more entrepreneurial skills.

Finally, Government and other relevant authorities should reform marketing structure of the rural areas such that it will allow honey investors to explore available marketing potentials through various marketing channels which will prevent the sales of their products at cheap farm gate prices.

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