

APE -04

Profitability of Establishing a Small-Scale Bee Farm in Aguata Agricultural Zone of Anambra State, Southeast, Nigeria

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Abstract

Estimating the profitability of establishing small-scale bee farm in Aguata Agricultural zone. It is a study geared towards discovering new ways of alleviating economic situation of rural dwellers in this zone. It was carried out using general survey on the population of people in Aguata Agricultural zone of Anambra state. It cost about sixty eight thousand seven hundred and thirty (N68, 730.00) naira to establish a small-scale bee farm. Total revenue generated was one hundred and seventy seven thousand five hundred naira (N177, 500.00). A profit margin of one hundred and eight thousand seven hundred and seventy naira (108,770.00). The benefit cost ratio indicated that bee farmers should expect to make 2.85 form every 1.00 spent making bee farming a very lucrative business.

Keywords: Bee keeping, profitability, benefit cost ratio

Introduction

Bee keeping is a mini livestock (Ogunjimi *et al.*, 2012) business that can thrive effortlessly in Nigeria. Bees are kept not only for income generated from honey sales, but also from bee wax used as sweetener for drinks, cosmetics, polish etc. The propolis is used for drugs, and livestock feed additives (Soltan *et al.*, 2015). Beside these products, a single bee can pollinate as much as two thousand five hundred (2,500) flowers a day (Grozinger and Fleischer, 2017). Nigeria's domestic consumption rate is about 380,000 tons of honey which is about 4.5 billion dollars in the current global market (Musa, 2017). This business has large foreign income earning potential, as it can generate up to 10 billion dollars annually, from honey trade alone (Musa, 2017) The wax also command high premium on the world markets. According to CTA (2001) report, the price of wax varied between two (2) to three (3) US dollars per kilogram as at 1990. European countries export bee wax of about 500 tons to developing countries (Euro Stat, 2015) which Nigeria is a part.

African Countries like Sierra Leone export 36,500 kg of honey worth 88,515 dollars and Zambia 55,624 kg worth 192,789 dollars as at November 30, 2017 (USDA, 2017). So why can't we do same to boast our economy, through honey production. Nutritionally, honey is made up of antioxidants, minerals, vitamin E, B vitamins, amino acids enzymes with no fat and cholesterol. (USDA, 2017 report). Since agriculture is the major business of rural dwellers in Aguata with a population of about 554,592 (NPC, 2006). Bee keeping not only raises their income, but it will also increases food production, therefore being one of the means of putting an end to Nigeria's current economic situation.

This study estimated the profitability of establishing a small-scale bee farm in Aguata Agricultural Zone of Anambra State, Southeast, Nigeria.

Materials and Methods

This study was carried out in Aguata Agricultural zone, consisting of five (5) Local Government Areas (Aguata, Orumba North and South, Nnewi North and South). It has annual rainfall of about 1,162 mm to 1,226 mm with relative humidity of 43%. The vegetation of the zone is a mixture of woody and grasses with lots of trees predominantly (Nwankwo and Anakebe-Ogbu, 2015). Items needed for small scale apiculture includes: Smokers, hives, gloves, hats, gallons and sieve.

The sample survey was conducted on adult male and female dwellers in the five local governments in Aguata Agricultural zone. Questions asked include; source of income, honey price per liter, cost of hive in your vicinity and some honey production challenges. Data generated was analyzed with profit function approach to check cost and return associated with honey production. It was expressed as follows:

$$\text{Profit } (\pi) = \text{TR} - \text{TC}$$

$$\text{TC} = \text{TVC} + \text{TFC}$$

Where TR = Total Revenue, TC = Total Cost, TVC = Total variable Cost, TFC = Total fixed cost.

Then, Benefit Cost Ratio (BCR)

$$\text{BCR} = \frac{\text{Sum of present worth of Benefit (PWB)}}{\text{Sum of present worth of cost (PWC)}}$$

$$\text{Benefit Cost Ratio (BCR)} = 2.58 \text{ i.e. } \frac{177,500}{68,730}$$

Decision Rule: If the BCR calculated is greater than one, honey production is considered profitable.

Results and Discussion

Table 1 shows the cost and income sources for establishing a small scale bee farm. It will cost about ₦59,230.00 to set up a small scale bee farm. Income generated from sale of wax and honey is about ₦177,500.00. (Table 2). The result on table 3 (Cost and return analyses for honey production per year) shows that sale of honey and wax constitute a total revenue of ₦177,500.00 (One hundred and Seventy Seven Thousand five hundred Naira). The total cost comprises cost of hive, hat, gloves, transport fare, labour cost, smokers and sieve. The total variable cost, total fixed cost and total cost had the values of ₦9,500.00, 59,230.00 and 63,730.00 respectively.

Table1: Production cost analysis

Fixed Items	Price (₦)	Depreciated Value (₦)
1 smoker	3500	3200
5 Top Kenya Hive	1,200 per 1	1100 x5 = 55,000
1 Rubber gloves	600 per 1	500
1 Hat	200	180
1 Sieve (Cheese cloth)	400	350
Total		59,230.00

Source: Survey data, 2017.

Table 2: Income sources

Income Sources	Rate (₦)	Value (₦)
A hive produces about 17 liters	2000 per liter x 5 (hives)	170,000.00
a hive produces about 3kg wax	500 per kg x 5 (hives)	7,500.00
Total		177,500.00

Source: Survey data, 2017

Table 3a: Cost and Returns analysis for honey production per year

Variable	Description	Value (₦)
Sale of honey	17 liters per hive	170,000.00
Sale of wax	3kg per hive	7,500.00
Total Revenue		177,500.00
Cost of labour (fixing and harvesting)		7,500.00
Transport (with in the 5 LGA)		2,000.00
Total variable cost (TVC)		9,500.00
Gross Profit (TR-TVC)		168,000.00

Table 3b:

Fixed Cost	Value (₦)
Depreciated value of tools	59,230.00
Total fix cost	59,230.00
Total cost (TVC + TFC)	68,730.00
Profit (π) TR-TC	108,770.00

Source: survey data, 2017.

Conclusion

The total revenue ₦177,550.00, less total cost 63,730.00 was found to give a profit of ₦108,770.00 per annum and the Benefit Cost Ratio (BCR) gave 2.85 indicating that honey production in the Aguata Agricultural

zone is highly profitable. The BC Ratio of 2.85 indicates that bee keeping farmers can expect two naira eighty five kobo (₦ 2.85) in benefits of every one naira (₦ 1.00) in cost of honey production.

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