



# ASSESSMENT AND EVALUATION OF EDUCATIONAL NEEDS OF FARMERS ON MODERN BEE KEEPING TECHNIQUES IN SOUTHERN NIGERIA

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## ABSTRACT

*This study examines the extension education requirements of rural farmers on modern bee keeping technologies in Ukanafun Local Government Area of Awka Ibom State. To achieve the aim of the research, three objectives were formulated on the theme of the research. Accordingly, three research questions were asked, one each on the research objectives, these were converted to three research hypotheses in that order. One hundred respondents (68 males and 32 females) were selected for study using purposive sampling technique. A close ended four item questionnaire was served on the respondents to gather data. The data generated from the survey was analyzed using percentage, descriptive analysis for biodata respondent and independent t-test to test for the three hypotheses. The test resulted in the acceptance of all the three hypotheses at 0.05 level of significance with 98 degree of freedom. By this acceptance, the study shows that bee keepers need extension education on modern beekeeping, routine management technologies on how to address the challenges of the bee keepers. The study therefore recommended that extension services should be strengthened in the villages, to enhance the performance of the beekeepers.*

**KEYWORDS:** Educational needs, Bee keeping techniques; bee farmers.

## INTRODUCTION

### 1.1 BACKGROUND TO THE STUDY

For preservation of the environment and ensuring that bee farming is practiced in its most sustainable way, it is vital to provide education and training courses to local farmers which will enable them to take care of their bee colonies and subsequently allow them to earn a regular supplementary income. Bee keeping training should comprise both theoretical and practical lessons, where participants get to understand the arts of keeping bees through interactive sessions. Multantis (2009) stated that comprehensive set of training materials, courses and equipment to train hundred at local farmers with

positive results. In order to promote diversification in agriculture and reduce poverty in Ukanafun Local Government Area, beekeeping is one of the major agricultural activities being upheld in the area. It offers a great potential for income generation and poverty alleviation. The most important service the honey bees render to man-kind is pollination of agriculture and forestry crops (FAD, 1990, common wealth, 2002). In contrast with other agricultural project such as livestock, poultry and fish farming, bee keeping is a relatively low investment venture that can be undertaken by most people (men, women, youths, disabled and the elderly). With bee keeping, there is no competition for resources used by other forms of

agriculture. Additionally it is environmental friendly and can be productive (Cater, 2004).

However, the climate of Nigeria is characteristically tropical and humid especially in Ukanafun Local Government Area, which supports the survival of bees (World Bank, 2006). The economy of the people is almost entirely agricultural with small holder cultivation of cereals and pulses, mainly characterized by subsistence farming mixed with livestock rearing. It required little initial capital. The main livestock types are poultry, goat and sheep. Live stocks are kept primarily as a store off wealth and sold when the need for income arise. However, majority of the bee keepers have ill knowledge of improve technology in bee keeping. However, modern bee keepers practice involves the use of improved technology which are easy to manipulate and manage (Cramp, 2003). The modern bee hives allow honey bee colony management and use of a higher level technology with large colonies and can give high yield and quality honey (Crane, 2004).

Moreover, improve box hive has advantages over the other in quality and quantity. High yield quality honey ease for inspection and harvesting of products are the major relative advantages of modern bee hive compared to the traditional one (Ntenga, 2000). The main types of hive used are movable comb hives and the movable frame hives. Other accessories that go together with modern bee keeping include the catcher box, protective clothing, smoking hive tool, bee brush and honey extracting and refining equipment. Some management practice are also considered as part of the improved bee keeping technology includes routine colony, inspection, colony division, artificial feeding and pest control (Onabe, 2011).

The probability of adoption of new technology will depend on the differences in profitability between the new and old technologies and the ability of the farmer to perceive the advantages and efficiently utilize the new technology (Worknel, 2008). A new technology will therefore offer opportunity to increase production and income substantially (Federetal, 2003). Technology adoption is a decision making process in which an individual passes through a number of mental stages before making a final decision to adopt an innovation. Decision making is the process through which an individual passes from acquiring knowledge of an innovation, forming an attitude towards an innovation, decisions to adopt or reject implementation of a new decision regarding resources used and technology adaption varies according to age, gender, and other categories. Cramb (2003) noted that the decision to adopt usually takes time. Usually, people do not adopt a new practice or idea as soon as they hear about it. They go through series of distinguishable stages that is knowledge,

persuasion, decision, implementation, and confirmation. For efficient utilization of the technology, the fulfillment of specific economic technical and institutional condition are required for the farmers economic perspective, the new technology should be more profitable than the existing alternatives (Ray, 2009).

## **MATERIALS AND METHODS**

### **Research Design**

The survey research design was used for this study. This design was preferred because it provides a means by which representative sample was drawn from the entire population in order to determine the bee farmers from the entire population with respect to one or more variables. The survey design helps the researcher to investigate a group of people by selecting a sample from the entire population of the study for the purpose of providing an accurate description about the group.

This research was conducted in Ukanafun Local Government Area of Akwa Ibom State. Ukanafun Local Government Area is one of the 31 local government area in Akwa Ibom state. It has its headquarters at Ikot Akpa Nkuk. It was created in 1976 by the military government under General Murtala Muhammed. Ukanafun was created from Abak in the then South eastern state. Ukanafun derive its name from the word "AKANAFONO" which, according to late Chief Frank Umoren means only the fitted can cross over. The Local Government comprises of five clans. The people of Ukanafun are from the socio cultural ethnic group known as Annang and the main occupation of Ukanafun people is farming and it is mainly subsistence. They produce farm produce ranging from yam, palm oil, plantain, cassava as well as livestock such as goat, poultry and bee farming. Its coordinates are 4°54'0"N, 7°36'0"E, 05.017°N, 7.617°E.

Ukanafun Local Government shares boundaries with Oruk Anam on the west, Etim Ekpo in the east, Ika in the north and Abak in the south.

### **Population of the Study**

The population of the study consists of 100 beekeepers selected from 10 wards of the study area. This was obtained from Ministry of Agriculture in Akwa Ibom State.

### **Sampling Techniques**

Purposive sampling technique was used to select beekeepers for the study. Due to the relative few member of bee farmers available for the study and to ensure that all the 10 wards in the study area had equal probability of representation to guide against bias in the sampling of all 100 bee keepers in all the 10 wards involved in the study.

**Sample**

The entire population was used in this study because it was small and manageable by the researcher.

**Table 1: Number of bee keepers from the sample ward**

Wards	NO: OF Beekeepers	SELECTED SAMPLE		
		Male	Female	Total
Ukanafun Urban	10	4	6	10
Southern Ukanafun I	10	7	3	10
Southern Ukanafun II	10	10	-	10
Northern Ukanafun I	10	8	2	10
Northern Ukanafun II	10	5	5	10
Northern Afaha I	10	5	5	10
Northern Afaha II	10	9	1	10
Southern Afaha I	10	6	4	10
Southern Afaha II	10	5	5	10
Southern Afaha III	10	7	3	10
<b>TOTAL</b>	<b>100</b>	<b>68</b>	<b>32</b>	<b>100</b>

**Instrumentation**

A questionnaire titled “Extension education needs of rural farmers on modern beekeeping technologies” was designed by the researcher for data collection. The questionnaire had four (4) sections A, B, C and D.

Section A contains personal information about the respondent such as wards, marital status, sex, years of experiences, age. Section B contains question item carefully structured to obtain information on the extension education needs on modern bee technologies. Section C contain item based on extension education needs on routine management technologies and section D contained items to obtain challenges faced by bee keepers. Each respondent was given a degree of score ranging from four to one as shown below:

- Strongly agree - SA
- Agree - A
- Disagree - D
- Strongly disagree - SD

**Validity of the Instrument**

The instrument was designed by the researcher and was given out to the project supervisor and two experts from the department of research and statistics for vetting in order to access its validity. All necessary correction was made before the final draft was administered to the respondents.

**Procedure for data collection**

The researcher established a good working relationship with the clan head of the ward and visited the ward and explains the aim of her visit which the clan head finally granted his approval to administer the questionnaire. Based on low educational personality on the respondent, there was need for guidance on how to go about the questionnaire. Hence a return rate of one hundred (100) was achieved.

**Procedure for Data Preparation and Coding**

A four point likert type of questionnaire scale ranging from Strongly Agree (SA) to strongly disagree (SD) was adopted for response in the instrument. The scoring of the questionnaire was done as follows, with the help of the scoring keys.

- Strongly Agree (SA) = 4points
- Agree (A) = 3points
- Disagree (D) = 2points
- Strongly Disagree (SD) = 1points

**Procedure for data analysis:** The analysis of data was carried out to test for main differences of the three hypotheses in order to reach a valid conclusion. Independent t-test is employed to test the difference in mean rating between extension education needs and rural farmers on modern bee keeping.

The t- ratio formula is more complete from is given by;

$$t_1 = \frac{X_n - X_f}{\sqrt{\frac{SD^2_m}{nm} + \frac{SD^2_f}{nf}}}$$

Where,

- X<sub>n</sub>=means of sample one
- X<sub>f</sub>=means of sample two
- nm= number of item in sample one
- nf= number of item in sample two.

## RESULTS

### Descriptive analysis of Bio-data

S/n	Variable	Male responses		Females response		Total	
		No	%	No	%	No	%
1	Sex	68	68	32	32	100	100
2	Marital status						
	i) Married	49	72.06	26	81.25	75	75
	ii) Single	17	27.24	6	18.75	25	25
3	Age						
	i) Less than 20yers	7	10.27	2	6.25	9	9.0%
	ii) 21-35	11	16.18	8	25.0	19	19.00
	iii) 36-45	26	38.24	6	18.75	32	32.00
	iv) 46.55	15	22.06	11	34.38	26	26.00
	v) 56 and above	9	13.23	5	15.62	14	14.00
		68	100.0	32	100.0	100	100.00

The table shows breakdown of bio-data of gender, marital status and age of bee farmers. Gender statistics show that 68 male and 32 female bee farmers were used for the exercise. About three-quarters of the

respondents were married while majority of the farmers (77 or 77percent) fell in the age bracket of 21 years to 55 years.

### Test of hypothesis

**Table 2: Independent t-test analysis of data for the difference in the mean rating of male and female bee keepers on extension education needs on modern bee keeping.**

Variable	N	X	SD	tcal	Crit. t.
Male bee farmers	68	20.29	2.81	0.6321	
Female bee farmers	32	20.14	3.94		

Significant 0.05 level, df = 98

Analysis of data, using independent t-test has produced a calculated t of 0.6321 which is less than the critical t of 1.96 at 0.05 level of significance with 98 degrees of freedom. On the basis of this result we accept. The null hypothesis has therefore conclude

that there is no significant difference in the mean ratings of male and female bee farmers on the need of extension education on modern bee farming.

**Table 3. Independent t-test analysis of data for the difference in the mean rating of male and female bee keepers on extension education needs on routine management.**

Variable	n	X	SD	tcal	Crit. t.
Male bee farmers	68	19.02	1.77	0.1701	
Female bee farmers	32	18.49	2.31		

Significant 0.05 level, df = 98

An independent t-test treatment on the data of this hypothesis has produced or calculated t of 0.1701, which is less than the critical t of 1.96 with 98 degrees of freedom. Therefore we fail to reject the null

hypothesis and conclude that there is no significant difference between the mean rating of male and female bee farmers.

**Table 4: Independent t-test of data for the difference between the mean rating of male and female bee keepers on the challenges face by modern day bee keepers.**

Variable	N	X	SD	tcal	Crit. t.
Male bee farmers	68	18.85	2.08	0.4946	
Female bee farmers	32	17.33	2.18		

Significant 0.05 level, df = 98

The test has produced calculated t of 0.4946 as against the critical t value of 1.96 at 0.05 level of significance with 98 degrees of freedom. Therefore, we accept the null hypothesis and thus conclude that there is no significant difference between the male and female bee farmers on the challenges faced in bee keeping.

**Discussion**

The three hypothesis formulated on this study were tested using independent t-test to justify their acceptance or non acceptance. Accordingly all the hypothesis, were accepted based on the analysis of

- i) Extension education requirements of male and female bee keepers on modern bee keeping  
Hypothesis 1: which tested that there is no significant difference between the mean rating of male and female bee keepers on the needs of extension education on bee keeping, was accepted the acceptance implies that both male and female farmers have accepted that there is need of extension education on modern bee keeping. They believed that if extension workers are made to impact knowledge on them, while on their bee farms, they will do better in the farming proceeds.
- ii) Extension education needs of male and female bee keepers on routine management technologies  
Hypothesis 2: which test for no significant difference between the mean and female bee

- keepers on routine management technologies was accepted by the acceptance of this hypothesis, it shows that both farmers need training in the routine management technologies of bee keeping. Their acceptance of a bee farm is not adequate for optimal production of bee product.
- iii) Extension education needs of male and female challenges in bee keeping.  
Hypothesis 3: tested that there is no significant difference between a mean rating of male and female bee farmers on the challenges faced by them. The null of this hypothesis was also accepted. That is, both male and female bee farmers accepted that there are obvious challenges in bee keeping.

**SUMMARY OF FINDINGS**

The finding of this study can be summarized that:

- 1) Both male and female bee keepers need extension education on modern bee keeping technology.
- 2) Male and female bee keepers need extension education on the routine management technologies of modern bee keeping.
- 3) There are challenges in modern bee keeping which both male and female farmers attested to.
- 4) Both male and female bee farmers have attested that extension education in bee

keeping is needed to enhance their performance.

## CONCLUSION

This study focused on extension education needs of rural farmers on modern bee farming technologies in Ukanafun Local Government Area of Akwa Ibom State. Three research question and three hypotheses were formulated to guide the study. The population of the study was 100 comprising of 68 male bee keepers and 32 female bee keepers in Ukanafun Local Government Area. The data for the study was obtained by the use of a structured questionnaire whose validity and reliability was ensured was administered to the respondents. Their responses were converted into raw scores and were analyzed using independent t-test. The result of the analysis revealed as follows:

- 1) Bee keepers need extension education on modern bee technologies.
- 2) Bee keepers need extension education on routine management technologies.
- 3) There was a significant challenges faced by farmers.

Based on the findings, it was observed that rural farmers in Ukanafun Local Government Area required extension education in the aspect of modern bee keeping technologies, routine management technologies and challenges faced by bee keepers.

It was also discovered that bee keepers still own traditional hives employing less of the modern management techniques. Their reluctance to adopt the modern technologies is influenced by a number of factors including age of farmers, level of education, access to extension services, experience, farm size and access to credit.

Based on the findings and conclusion of the study, the following recommendations were made:

- 1) Extension services should be strengthened down to the village level to inform farmers about bee keeping and the new technologies in order to increase the rate of adoptions.
- 2) Government should provides more funds for establishment of forest to control recurrent drought, pest and predators, absconding and migration of honey bee colonies as well as provision of employment to reduce the rate of vandalism and deforestation.
- 3) Government should organized conferences, seminars and workshop to educate bee keepers on skills and knowledge required in routine management technologies, artificial feeding, management during breeding season and management during honey flow season
- 4) Bee keepers are advised to place the hives at height which where it will allows to work on their feet. This will increase women

participation in the enterprise since women are not allowed to climb trees in some cultures.

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