

RESEARCH NOTE

Constraints to Adoption of Beekeeping Management Practices among Beekeepers in Osun State, Nigeria

O.W. Kareem¹, K.D. Kokate² and P.B. Kharde³

1. Ph D Scholar, 2. Director, Extension Education and 3. Asso. Prof. Department of Extension Education Post Graduate Institute, Mahatma Phule Krishi Vidyapeeth, Rahuri- 413 722 Maharashtra State, India

Corresponding author e-mail: abdulkareem.wahid@gmail.com

Paper Received on May 10, 2017, Accepted on June 10, 2017 and Published Online on July 01, 2017

ABSTRACT

Beekeeping is a profitable enterprise that has not been fully explored in Nigeria because of many constraints which serve as impediments for full adoption of its improved management practices. The study examines the constraints to adoption of beekeeping management practices in Osun State, Nigeria. A multi-stage random sampling technique was used to select 200 beekeepers from different beekeepers' zones in the study area. Well structured interview schedule and focus group discussions were used to collect the data. The findings of the study revealed that majority (78.5%) of the respondents were male and 70 per cent of them fell within the age of 30 – 50 years. Of 200 respondents, 64 per cent had post secondary education while only 2 per cent had no formal education. Most (36.5%) of the respondents had 8 – 12 years of beekeeping experience with fellow beekeepers as major source of their information. Majority (77%) of the respondents had annual income of NR51,000 – NR100,000 and the main source of their capital for beekeeping was through personal savings. The extent of adoption of improved beekeeping management practices by the respondents was at medium (Mean = 96.12, SD = 5.15). Out of the ten constraints mentioned by the respondents', lack of honey collection and processing centre had the highest Priority Index of 1.596 with lack of cooperative society having the least (PI = 0.019). The study recommends that the government should make beekeeping a sustainable agribusiness by providing necessary equipment and processing facilities for the beekeepers in order to expand technology, boost employment and honey production.

Key words: Adoption; Beekeeping; Beekeeper; Constraints; Management practices;

The youth population is an estimated 81 million Nigerians who are grossly unemployed with their potentials underutilized; over ten millions Almajiris (Child beggars) wandering the streets of Northern Nigeria; 23.9 per cent of employable Nigerians unemployed; and 112 million Nigerians (61%) living on less than a dollar per day thereby posing a serious threat to social development. (Alao, 2014). Under this condition, the use of appropriate technologies with adoption of best management practices would make the art of beekeeping a formidable tool to empower these teeming unemployed youths in the country and to create sustained livelihood that could be utilized to develop rural communities.

Apiculture being an agribusiness enterprise requires the most suitable management practice to maximize

output since the use of fire to harvest honey in the traditional beekeeping instead of modern equipment usually results in destruction of ecosystem and economic trees (Crane, 2002). There is even a marked supply deficit of honey given the fact that a great proportion of the honey in the markets is from the traditional hive (Ntenga, 2000). The use of modern management and best practices in beekeeping can earn Nigeria good quantity and quality honey both for domestic consumption and significant foreign currency by exporting beekeeping products to different countries which have a role in the development of the economy of the country. Aside from its profitability with little investment apiculture in general and improved apiculture in particular contribute to environmental protection and

sustainable agriculture through a reduction of the environmental effects from tree felling for traditional bee hive construction and from fire hazards in smoking bee hives with inappropriate equipment. Bees are known to improve, and are seen by many policy makers as improvers of agricultural crop yields through their pollination of fruit trees and crops. It has also regarded in policy documents as important contributors to the maintenance and enhancement of ecosystem biodiversity. It is considered by many (Roubik, 2001) that the largely unquantifiable economic benefits from increased crop yields and maintenance of biodiversity should be valued at many times the value of the physical outputs.

It is however, noteworthy that some factors could be impediments or constraints for complete adoption of improved management practices in beekeeping enterprise as it has been revealed from the previous literatures. Tamrat (2015) reported that the major constraints in beekeeping were indiscriminate application of herbicides and pesticides, invasion of predators (ants, spiders, lizards, birds), lack of adequate skills and knowledge of modern bee hives, lack of equipment, lack of bee forages and capital. Adgaba et al. (2013), opined that the beekeeping enterprise was constrained with the absence of rainfall, shortage of bee forage, extreme temperature, honey bee disease, poor marketing of honey products, use of synthetic pesticides and lack of training. Moreover, different climatic conditions and government policies determine the level of constraints in various regions and countries couple with few research studies on the constraints to adoption in beekeeping. This study therefore, poised to examine the constraints to adoption of beekeeping management practices in Osun State, Nigeria.

METHODOLOGY

Osun State was purposively selected and members of beekeepers association were the population used for this study. A multi-stage random sampling technique was used to select five beekeepers zones with two communities from each of the zones, making ten communities available for the study. Twenty beekeepers were randomly selected from each of the ten communities. Hence, the sample size was two hundred (200) respondents. Well structured interview schedule and focus group discussion were the instruments for data collection. Statistical tools such as frequency and

percentages, mean, standard deviation and ranking method were employed to analyze the data.

The components and adoption index developed by Mujuni et al. (2012) with slight modification was used to determine the respondents' extent of adoption. The selected five components were hive location, hive inspection, use of modern equipment, apiary sanitation and honey bee pest and disease management. 37 beekeeping management practices were stated and scoring of each statement was done on 3 point likert-type scale (fully = 3, partially = 2 and not = 1, doing the practices). Each respondent was to obtain minimum and maximum scores of 37 and 111 for his/her responses. The total scores were later converted to a standardized score of adoption index (A.I.) as shown below.

$$A.I. = \frac{\text{Total adoption score obtain by a beekeeper}}{\text{Maximum score a beekeeper can obtain}} \times 100$$

However, adoption indices were computed for each of the beekeepers and they were grouped into three categories by using mean and standard deviation as a measure of check.

RESULTS AND DISCUSSION

Socioeconomic characteristics of the respondents: The result in Table 1 revealed that 70 per cent of the beekeepers were within the age category of 30 – 50 years which falls in the middle age. Then, 17.5 per cent of the total respondents were in their young age followed by 12.5 per cent of the old age. This inferred that both young and middle aged people were involved in beekeeping activities considering this age bracket. This finding is supported by Farinde et al., (2005) that 73.8 per cent of the beekeepers were aged 30 years and above.

The majority of the beekeepers (78.5%) in the study area were male with 21.5 per cent being female. This implies that beekeeping activities were dominated by men than their women counterparts. This is in congruent with the findings of Matanmi (2008) and Ayansola (2012) that majority of the beekeepers (80%) and (93.3%) in Nigeria were male.

Overall adoption of the respondents : Table 2 reveals that the extent of adoption of beekeeping management practices in the study area was at 'medium' with 80 per cent. Then, of the three categories, 5 per cent and 15 per cent of the beekeepers fell in the categories of 'high' and 'low' adoption level. This might be linked to their sources of beekeeping information such as fellow

Table 1. Socioeconomic characteristics of the respondents

Variables	No.	%
<i>Age (years)</i>		
Young (Below 30 years)	35	17.50
Middle (30 to 50 years)	140	70.00
Old (50 years and above)	25	12.50
<i>Gender</i>		
Male	157	78.50
Female	43	21.50
<i>Educational level</i>		
No formal education	4	2.00
Non-formal / Quranic	7	3.50
Primary (Std. I to 6)	25	12.50
Secondary (Std. 6 to 12)	36	18.00
Post secondary	128	64.00
<i>Years of experience</i>		
<5	36	18.00
5 – 8	39	19.50
8 – 12	73	36.50
12 – 15	42	21.00
>15	10	5.00
<i>Annual income (Naira)</i>		
Up to 50,000	40	20.00
51,000 – 100,000	154	77.00
>100,000	6	3.00

Table 2. Description of respondents according to their overall adoption level (N = 200)

Adoption level	No.	%	Mean	S.D.
Low (Up to 73 score)	30	15	96.12	5.15
Medium (74 to 89 score)	160	80		
High (90 & above score)	10	5		
Total	200	100		

Table 3: Priority Index of beekeeping constraints

Constraints	Index	Rank
Lack of honey collection and processing centre	1.596	I
Poor access to capital for expansion	1.263	V
Inadequate skill knowledge in queen bee rearing	1.438	II
Honey sales problem	1.401	III
Unavailability and high cost of modern equipment	1.341	IV
Vandalization of bee hives	1.258	VI
Problem of pests and predators	1.088	VII
Bush burning	0.249	VIII
Lack of cooperative society	0.019	X
Insufficient land for setting up apiary	0.023	IX

beekeepers, radio, television, internet, extension agents, newspapers and text books.

Priority index of beekeeping constraints: Table 3 revealed the respondents’ prioritized major constraints to adoption of improved beekeeping management practices in the degree of their importance as follows: lack of honey collection (1.596), inadequate skill knowledge in queen rearing (1.438), honey sales problem (1.401), unavailability and high cost of modern equipment (1.341), and poor access to capital for expansion (1.263). Other constraints are vandalism of bee hives (1.258), problem of pests and predators (1.088), bush burning (0.249), insufficient land for setting up apiary (0.023) and lack of cooperative society (0.019). The finding of the study is in line with that of *Tabinda et al. (2013)*.

Respondents’ suggestions to constraints: It is observed in the Table 10 that the beekeepers suggested solution for each of the constraints which can be adapted and applied to similar situations by different stakeholders in the future. Majority of the beekeepers (92.5%) suggested standardized honey collection and processing centre. Regarding problem of skill knowledge in queen bee rearing, respondents’ suggested that the future training should be improved upon by making it more field oriented and practical coupled with integrated pest management techniques to help them solve the problem of insufficient queens and pest infestation. For the constraint on honey sales, government was urged to provide a viable marketing channel for beekeeping sector in order to encourage more people into the enterprise most especially now when unemployment rate is in the rise in Nigeria. Moreover, unavailability and high cost of equipment have made farmers resulted in borrowing and hiring from fellow beekeepers as a coping strategy to sustain the business. The respondents suggested local production of beekeeping equipment to make it relatively cheaper to afford at a reasonable lower cost. Provision of start-up capital for beekeepers is also important; this was suggested to be in form of soft loans or interest free loans to farmers at least for kick-starting the business or may be free supply of hives and hive equipment by the government. The respondents suggested that the apex body, Osun state beekeepers association of Nigeria should liaise with government to form independent thrift and credit cooperative society. This will assist the farmers to access free interest loans

Table 4. Respondents' suggestions to constraints in the adoption of management practices (N = 200)

Suggestions	No.	%
Provision of standardized honey collection and processing centre	185	92.50
Provision of soft loans or hives and hive equipment for beekeepers	178	89.00
Provision of effective practical training on queen bee rearing and IPM	165	82.50
Provision of adequate market for honey	150	75.00
Local production of modern bee equipment at low cost	135	67.50
Government sponsored radio jingles against hive vandalization	121	60.50
Formation of cooperative society by the state apex association	90	45.00
Review of law on land tenure system	75	37.50
Introduction of government laws against bush burning	58	29.00

and other beneficial packages either from state / federal government, financial institutions, NGOs or foreign donor agencies. State government was also advised to create

awareness through radio jingles or extension workers against vandalisation of bee hives. Respondents' also suggested promulgation of law by the state government to stop indiscriminate bush burning.

CONCLUSION

It has been deduced from this finding that beekeeping is a male dominated enterprise of mid-aged people. The level of education of those who engaged in beekeeping is an important factor to reckon with because of its multiplier effects on the good management of apiary and ability to explore internet and other media to get a lot of relevant information. The finding has revealed that adoption of any technology takes a long process before having its full implementation most especially among the people of different age categories. Beekeeping could be a viable venture that generates huge amount of money for the beekeepers with little capital investment that may be generated from personal savings however, those constraints exposed by this study are necessary to be resolved by the concerned government or organizations for successful running of the enterprise.

REFERENCES

- Adgaba, N., Awraris, G. S., Al-Ghamdi, A. A., Sobhy, I., Al-Kahtani, S., Yilma, T., and Adoyo, F. (2013). *The Mirror Technique in rural extension*. Ileia magazine 2004, April. Accessed 18 June 2012. Available: www.agriculture.org/magazine.
- Alao, I. I. (2014). Youth empowerment and development drive: An invaluable step to secure Nigeria's future prosperity. *The Erudite J. Lead. Devpt.*, **2**(1): 28-34
- Ayansola, A. A. (2012). An Appraisal of Apicultural Practices in Southwestern Nigeria. *J. Agri. Sci.*, **3**(2): 79-84.
- Crane, S. (2002). *Traditional Beekeeping and Harvest of the Ancient World*. Volume 68, Britain. Federal Republic of Nigeria: Official Gazette, 2009.
- Farinde, A.J., Soyebó, K.O. and Oyedokun, M.O. (2005). Exploration of Beekeeping as a coping strategy in a Deregulated Economy. *J. Agri. Extn.*, Vol. 8. Improving Productivity and Market Success (IPMS). Enterprise gender fact sheet; Apiculture, Atsbi PLW, Tigray Region, Ethiopia.
- Ntenga, G. M. (2000). A Study of Traditional Beekeeping in Batbati District, Honey Hunters and Beekeepers. Swedish University of Agricultural Science.
- Matanmi, B.M, Adesiji, G.B, and Adegoke, M.A (2008). An analysis of activities of Bee hunters and bee keepers in Oyo State, Nigeria. *African J. Livest. Extn.* **6**: 7-11.
- Mujuni, A., Natukunda, K. and Kugonza, D.R. (2012). Factors affecting the adoption of beekeeping and associated technologies in Bushenyi District, Western Uganda. *Livestock Res. Rur. Devpt.* **24**:8.
- Roubik, D. W. (2001). Ups and Downs in Pollinator Populations: When is there a Decline? *Conservation Ecology*, **5**(1): 2-5.
- Tabinda, Q., Murad, A., Sajida, T., and Nadeem, A. (2013). Impact Assessment of Beekeeping in Sustainable Rural Livelihood. *J. Soc. Sci.*, COES&RJ-JSS, **2**(2) : 82-90.
- Tamrat, G. (2015). Adoption of Modern Bee Hive in Arsi Zone of Oromia Region: Determinants and Financial Benefits. *Agri. Sci.*, **6**, 382-396. <http://dx.doi.org/10.4236/as.2015.63038>.

