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Profitability of Honey Production in Idemili South local Government area of Anambra State, Nigeria

Chigbo, C[1], Ahaotu, E.O[1, 2*], Edih, M.C[1, 2] and Olueze, C.C[1, 2]

[1]Department of Animal Production Technology, Imo State Polytechnic Umuagwo, Nigeria
[2]Department of Animal Production Technology, University of Agriculture and Environmental Sciences, Umuagwo, Nigeria

***Corresponding Author:** Ahaotu, E.O, Department of Animal Production Technology, Imo State Polytechnic Umuagwo, Nigeria*

ABSTRACT

This study was conducted in sampled communities in Idemili South Local Government Area of Anambra State, Nigeria to identify the major constraints of beekeeping opportunities and suggest possible solution for existing problems. Data were collected from 50 beekeepers having three types of hives and living in three different agro-ecological zones using questionnaires. The major pests and predators are ants, spiders, wasps, lizard, snake and birds. Lack of beekeeping equipment, chemical poisoning by pesticides and herbicides application, shortage of bee forage, drought, knowledge and skill gaps are the major constraints in beekeeping development in order of their importance. The existing beekeeping practice in the study area is more or less in a traditional manner. To sustain the beekeeping activity, there should be introduction of affordable and appropriate beekeeping technologies with all accessories, strengthening the appropriate beekeeping management practices, mobilizing women and non-beekeepers in to sub-sectors through training.

Keywords: *Beekeepers, Predators, Bee Forage, Beekeeping Management Practices.*

INTRODUCTION

Africa is blessed with numerous types of wild honey-bees (Ahaotu, 2014). Nigeria is one of the countries in the continent of Africa, which own huge honey production potential. Owing to its varied ecological and climatic conditions, Nigeria has diverse plant species that provide surplus nectar and pollen to foraging bees (Ahaotu and Nwachukwu, 2014).

Honey contains a complex mixture of carbohydrates, mainly glucose and fructose; other sugars are present as traces, depending on floral origin. It also contains small quantities of organic acids, lactones, amino acids, minerals, vitamins, enzymes, phenolic compounds, volatile compounds, pollen, wax and pigments (Oluwalana *et al.*, 2014). The contents of these components in honey are the most important quality criteria of honey and indicate some important deterministic quality properties of the honey (Sahinler and Gul, 2004).

Chemical composition of honey mainly depends on the vegetation sources from which it is derived. External factors like climate, harvesting conditions and storage can also influence it (Ahaotu, 2014). Careless handling of honey can reduce its quality. Amongst the factors that most influence quality is high temperature, length of storage and moisture content greater than 21%. They lead to fermentation, high levels of Hydroxyl methyl furfural (HMF), loss of enzymatic activity, changes in flavor, darkening and microbial growth (Moguel *et al*, 2005). Moisture content is one of the most commonly monitored parameters as international quality standards for honey (Ahaotu *et al.*, 2014).

Beekeeping is believed to play a significant role and one of the possible options to the smallholder farmers in order to sustain their livelihood. It does not only serve as a source of additional income, but also quite a number of people entirely depend on beekeeping and honey selling for their livelihoods. Nuru (2002) indicated that honeybee and their products provide direct cash income for beekeepers. Honey processors' and exporters' channels also start from beekeepers and goes through the local agents of honey processors and/or honey marketing cooperatives, which supply the honey directly to the processing plants either with partial refining or as it is. The processing plants further refine the honey using advanced processing devices and pack into labeled

containers for local markets (super markets, food groceries and big hotels) and very often to export markets.

Nigeria has enormous untapped potential for promoting beekeeping; both for local use and for export purpose. However, like any other livestock sector, this sub sector has been ceased by complicated constraints. The prevailing production constraints in the beekeeping sub sector of the country would vary depending on the agro ecology of the areas where the activities is carried out (Edessa, 2002). Variations of production constraints also extend in socio-economic conditions, cultural practices, climate (seasons of the year) and behaviors of the bees. Ayalew (2001) stated that the major constraints in the beekeeping sub sector are the unpleasant behaviours of bees (aggressiveness, swarming tendency, and absconding behaviors); lack of skilled manpower and training institutions; low level of technology used; high price of improved beekeeping technologies; drought and deforestation of natural vegetation; poor post-harvest management of beehive products and marketing constraints; indiscriminate application of agrochemicals; honeybee disease, pest and predators; poor extension services; absence of coordination between research, extension and farmers; absence of policy in apiculture; shortage of records and up-to- date information; and inadequate research institutions to address the problems.

Honey contains a complex mixture of carbohydrates, mainly glucose and fructose; other sugars are present as traces, depending on floral origin (Amssalu, 2002). It also contains small quantities of organic acids, lactones, amino acids, minerals, vitamins, enzymes, phenolic compounds, volatile compounds, pollen, wax and pigments (Oluwalana *et al.*, 2014). The contents of these components in honey are the most important quality criteria of honey and indicate some important deterministic quality properties of the honey (Sahinler and Gul, 2004).

MATERIALS AND METHODS

Description of the Study Area

The study was carried out in Idemili South Local Government Area of Anambra State, Nigeria. Idemili South is one of the Local Government Areas in Anambra State, South-East Nigeria. Towns that make up the local government are Akwu-Ukwu, Alor, Awka-Etiti, Ojoto, Nnokwa, Oba and Nnobi. Idemili South Local Government Area has Latitude: 6° 2' 51.7" (6.0477°) North, Longitude: 6° 56' 59.7" (6.9499°) East and Elevation: 219 meters (719 feet).

Idemili clan is a conglomeration of 19 towns that make up the present Idemili North and Idemili South Local Government Areas of Anambra State, Nigeria. Northern Towns that make up the local government are Abacha, Abatete, Eziowelle, Ideani, Nkpor, Obosi, Ogidi, Oraukwu, Uke, and Umuoji. Southern Towns that make up the local government are Akwa-Ukwu, Alor, Awka-Etiti, Nnobi, Nnokwa, Oba, Ojoto, Umunachi and Umudioka.

Idemili North local government area was created out of Idemili local government area in 1989. It is bounded on the north by Oyi and Dunukofia local government areas, on the east by Njikoka and Anaocha local government areas, on the south by Idemili South and west by Onitsha South local government area.

Idemili South Local Government Area was also created out of Idemili local government area in 1989. It is bounded on the north by Idemili North local government area, on the east by Anaocha local government area, on the south by Nnewi North and Ekwusigo local government area and on the west by Ogbaru local government area. Idemili South Local Government Area has Land Area of 139, 000 square kilometers, population: 206,816 (NPC, 2006), communities: Ojoto (Head Quarter), Akwa - Ukwu, Alor, Awka-Etiti, Nnobi, Nnokwa, Oba, Umunachi and Umudioka.

Anambra State is an agrarian state with oil palm, cassava, as the major crops cultivations with the annual rainfall ranging between 200 to 1200 mm (Ahaotu *et al.*, 2019). Apart from arable crops, and livestock production in the area, *Melliferous flora* is common in the area under study. There are a lot of weeds climbers and ornamentals which are plants visited by the honeybees, the common tree plants include rubber, oil palm, cocoa, kola apart from these, fruit trees like mango, citrus and guava are scattered around the area which provide good flora for bees (Fadare, 2003).

Sampling Techniques

For purpose of this study five (5) communities will be purposively chosen and from each ten (10) honey farmers will be randomly selected making a total of fifty (50) respondents. The beekeepers to be sampled will be stratified on the basis of technology used, whether traditional or modern. The stratification of beekeepers is necessary because variables such as hive types

and harvesting/processing equipment have important contribution to honey output. Simple random sample was used to select (10) respondents made of six (6) traditional beekeepers and 4 modern beekeepers in each community. This will give a total of 20 modern beekeepers and 30 traditional beekeepers in the study area.

Both primary and secondary data will be collected for this study. The primary data will be collected from the beekeepers by use of structured questionnaire designed to obtain relevant information regarding their honey production and marketing activities. Information to be collected include socio-economic variables like age of farmers, educational status, year of experience in beekeeping honey product output, number of colonies types and sources of beekeeping equipment, marketing system, cost and returns of honey production. Secondary data will be collected via existing information from literature and previous studies.

Data Analysis

Simple descriptive statistics, frequency and percentages will be used to analyze the data to be collected.

Fig1. *Map of Idemili South Local Government Area of Anambra State, Nigeria*

Data Collected

The study required wide range of information with reference to beekeeping. Questionnaires were distributed through the help of extension agents to actualize easy flow of research data.

Household Socio-Economic Characteristics

Sex, age, family size, education level, land size holding, livestock, honeybee colonies, off-farm activities and crop production are the parameters used to collect data.

Honey Production and Marketing Systems

Honeybee type and behavior, the present number of hives owned, type of hives used and cost of hives, beekeeping equipment, honey flow and dearth period, amount of honey and crude beeswax harvested, cost of production of honey and crude beeswax, honey and bee colony marketing situation and market prices.

Farmers' Indigenous Knowledge and Practices

Place of keeping hives (site), hive inspection, methods of swarm control, swarm catching experiences, harvesting time and methods, honey storage facilities and post- harvest management of honey.

Potential, Constraints and Opportunities of Beekeeping in the Area

Potential honeybee plants and flowering time, poisonous plants, water resources availability, honeybee pests and predators, insecticides and other chemicals application, availability of credit and extension services.

Honey Quality

Physical and chemical compositions of the honey samples were determined in laboratory for parameters like moisture content (%), ash (% by mass), reducing sugar (% by mass), sucrose content (% by mass), diastase activity, P^H, acidity (milli.eq./kg) and HMF (mg/100kg).

Data Sources and Methods of Collection

Both primary and secondary sources of data were used in this study. Secondary data were obtained from reports of Agricultural Development Programme Office and Zonal Agricultural Department Office. Primary data were collected using semi-structured questionnaire.

Results and Discussion

Socio - Economic Characteristics of Households

This chapter provides an overview of the beekeeping practices of sample respondents in Akwu-Ukwu, Idemili South Local Government Area of Anambra State based on the questionnaires and samples collected. The results are presented and discussed more specifically and entirely to the situation of sample households.

Household Characteristics

From the total of 120 sampled households distributed questionnaires to generate data on beekeeping, about 98.3% were male headed and the rest 1.7% were female headed. This very

limited number of female participation agrees with Desalegn (2001 and 2006). This might be due to the fact that beekeeping activities were performed by women. The average family size of the sample farmers in the study area was 4.92 persons, with maximum and minimum family size of 8 and 1 person, respectively.

The beekeepers had an average experience of 14.51 years ranges from 1 to 45 years (Table 1). The level of beekeepers' experience was taken to be the number of years that an individual was continuously engaged in beekeeping. This is what one would expect in a situation where people are actively engaged starting from an early age in helping older beekeepers to undertake basic tasks. Based on this exposure, young people gradually move on to become independent beekeepers as soon as they obtain their own hives (Gichora, 2003 and Keralem, 2995). They continue accumulating experience by seeking technical advice from fellow beekeepers whenever necessary.

The mean age of the respondents were 41.46 years (with standard deviation of 11.25 years) ranging from 20 to 66 years (Table 1). This result showed that beekeeping can be performed by economically active age groups and in most cases people at younger and old age is actively engaged in beekeeping activities.

Of the total households interviewed, 97.5 % are married while 0.8%, 0.8% and 0.8% are single, divorced and widows, respectively. With regard to religion, all of the household respondents (100%) are Orthodox (Christians). Based on the results of this study, people regardless of their marital status undertake beekeeping activities in Akwu-Ukwu, Idemili South Local Government Area of Anambra State, Nigeria (Table 1).

Table1. *Age, experience, family size and land holding of household heads. Total sample (n=120)*

Socio-economic indicators	Minimum	Maximum	Mean	S.D
Age of household (yrs.)	20.00	66.00	41.46	11.25
Experience (yrs.)	1	45	1 4.51	8.73
Family size	1	8	4.92	1.27
Land holding (ha)	0.25	4.49	1.77	0.91

Sample respondents were also interviewed to describe their participation and involvement in the community and 42.5% were simply members whereas about 13.3% have a role in political participation (Table 2).

Table2. *Household heads participation in the community*

Total sample	(n=120)	Household heads participation N %
Political leader	16	13.3
Religious leader	5	4.2
Elder	*44*	*36.7*
Community member	51	42.5
Police	1	0.8
Team leader	3	2.5
Total	120	100.0

Land Holding

The average land (plowing, backyard and pasture) holding of the sample respondents during the study year was 1.77 hectares (Table 1) which is higher than the National average household land holding of 1.0 - 1.5 hectares. About 8.5% of the sample respondents have no private land holdings which indicates, beekeeping can be applied even with those have no land. This further indicated that beekeeping can be performed by landless people.

Educational Status of the Family Heads

Regarding educational status, among the sample respondents 15.1% had not received any education, while 40.8% percent could only read and write. The rest were at stages of literacy ranging from elementary to high school level. More specifically, 22.5%, 15.8% and 5.8% of the sample respondents had attended elementary school, junior, secondary and high school, respectively (Table 3).

Table3. *Educational Status of the Head of the Household*

Educational Status	Total sample (n=120)	N %
Illiterate	18	15.1
Read and Write	45	40.8
Elementary	*27*	*22.5*
Junior	19	15.8
High School	7	5.8

Gichora (2003) and Paterson (2006) noted that for more advanced beekeeping, one should have a good grasp of bee biology and behavior of bees for better colony management. Moreover, for illiterate people there is a need of intensive training and persuading of beekeepers before distributing movable frame hives. Based on the result of this study high levels of illiteracy (15.1%) in Idemili South Local Government Area of Anambra State, Nigeria limits the effectiveness of formal training programs and requires more emphasis to be placed on practical demonstration of essential concepts especially in improved beekeeping.

Livestock Holdings and Purpose of Keeping

The major livestock reared in the area are cattle, sheep and poultry. The mean livestock holding per house hold is shown in Table 4. As an integral part of the mixed farming system, livestock production plays a substantial role in the household food security in the area. It meets urgent financial need, dietary requirements, and also for social and cultural functions.

The most important resources owned by sample households were poultry, sheep and goats. Amongst the interviewed households, 6.7% owned no goats (indicating that resource poor farmers are also participating in beekeeping), 5% owned goats, 46.7% owned two goats and 41.6% owned more than two goats. The mean honeybee colony holding of household respondents was 6.48 colonies.

Table4. *Livestock and honeybee colony holdings of sample respondents Total sample (n=120)*

Animal species	Minimum	Maximum	Mean	S. D
Cow	0.00	6.00	1.60	1.33
Bull	0.00	3.00	0.62	0.89
Heifers	0.00	*3.00*	*0.60*	*0.85*
Calves	0.00	14.00	3.84	1.05
Sheep	0.00	16.00	2.87	3.17
Goat	0.00	14.00	0.32	1.48
Donkey	0.00	3.00	0.71	0.88
Horse	0.00	0.00	0.00	0.00
Mule	0.00	2.00	0.03	0.22
Chickens	0.00	26.00	4.38	5.31
Bee colony*	1.00	66.00	6.48	6.86
* indicate the three types of hive				

According to the interviewed beekeepers, the main purposes of keeping livestock, poultry and bee colony were for cash income, consumption and transport purposes (Table 5). This agreed with the findings of Okelana *et al.*, (2014) who stated that income realization is the main motive of starting any business enterprise. Cow dung and droppings were also used as fuel and fertilizer. The major sources obtained from cattle were milk and milk products. Small ruminants and chicken were slaughtered during festivals and used as source of meat. It also reported that the main purposes of keeping bees were source of income and consumption.

Table5. *Purpose of livestock keeping* Total sample (n=120)

Animal species	Purpose of keeping livestock (%)					
	Cash income	Consumption	Draught Transport	Dowry	Breeding	Power and gift
Cow	15.9	51.1	2.5	-	-	30.7
Bull	28.9	11.1	55.6	-	-	4.4
Heifers	*31.02*	*11.6*	*88.3*	-	*6.2*	*42.6*
Calves	25.0	31.2	-	-	7.8	39.9
Sheep	33.7	43.4	-	-	6	16.9
Goat	27.3	63.6	-	-	9.1	-
Donkey	11.3	-	7.5	81.1	-	-
Horse	-	-	-	-	-	-
Mule	-	-	-	100	-	-
Chickens	39.5	53.9	-	-	6.6	-
Bee colony	50.4	44.5	-	-	10.9	4.2

Involvement of Sample Respondents in Off-Farm Activities

According to the survey result 15% of household sample respondents were involved in different off farm activities besides beekeeping to supplement their livelihoods. The percent involvement and type of off-farm activities are trade (50%), pottery (5.6%), carpenter (27.8%), civil servants (11.1%) and guarding (5.8%). The involvement of sample respondents in various off-farm activities reflects that beekeeping can be exercised as part time activity to supplement the household livelihood. Men (61.1%) ranked first in the degree of involvement in off-farm activities followed by parents (men and women) (16.7%), son (16.7%) and women (5.6%). The major reasons for involvement in non-farm activities were for income and services fee. These are in line the findings of Amir and Knipscheer (1999).

Availability of Credits

According to the results of this survey, 85.0% of interviewed households have access to credit services. The main credit sources of the sample respondents were cooperatives (79.2%), credit and saving institution (17.8%), WARDO (2%) and NGO (1%). Purpose of sample respondents for accessing credit service was for purchasing fertilizer (48%), colony and beekeeping inputs (38%), fattening (9%), buying ox (3%), seed (1%) and herbicide (1%). The highest percent of credits for livestock and beekeeping might be attributed to their nature of requirement of more capital investment. Moreover, this reflects that interventions in livestock sector are profitable and should be given due attention by the government. However, about 15.0% of the sample respondents have no access to credits for farming operations for defined reasons. This is mainly due to high interest rate (30%), late delivery (19.2%), lack of cash for down payment (12.5%), restrictive procedure (11.7%), lack of knowledge (10%) and inflexibility (9.2%), lack of collateral (5%), (details are indicated in Table 6). Thus, in this regard much has to be done to work in creating awareness and solving the above reasons having no access of farmers to credit to facilitate the utilization of inputs and technologies for farming activities in general and beekeeping activities in particular.

Beekeeping Extension Service

The survey work illustrated that 80% had the chance of getting beekeeping extension service delivery. This reflects the need for developing concrete and sound beekeeping extension system in the future for sustainable beekeeping development in Akwu-Ukwu, Idemili South Local Government Area of Anambra State. According to this study, 63.3% of beekeepers received improved bee hives while 36.7% did not receive any. Of the sample respondents, 62.5% were trained and 37.5 % were not trained. The majority of these beekeepers reported that they cannot transfer the colony from local to frame hives, and even those who can transfer were unable to harvest the honey. This might hamper beekeeping technology adoption process. Among those who are members of the extension service, 53.1 % are extension package participants, followed by follower farmers (26%), contact farmers (17.7%) and farmers with no position (5.2%). According to the results of this survey, only 38.3% of the interviewed households had access to field day on bee keeping. From this it can be noted that informal knowledge flow plays vital role for sharing of experiences among beekeepers that in turn build up indigenous knowledge like swarm control, queen rearing and pest and disease control. Majority of beekeeping activity is geared by self-owned form of indigenous knowledge. This again implies the essentiality of taking indigenous beekeeping knowledge into consideration in each and every modern beekeeping development intervention.

Table6. *Extension participants of respondents on beekeeping in percent Total sample (n=120)*

Position	%
Extension package participant	53.1
Follower farmer	26.0
Contact farmer	17.7
No position	5.2
Total	100

Beekeeping Practices

Beekeeping practices, sources, numbers, and trends of colonies owned by beekeepers, apiary sites, types of equipment used, and the overall beekeeping activities in the honey production systems of the study areas are discussed.

Practices of Beekeeping in Akwu – Ukwu, Idemili South Local Government Area of Anambra State, Nigeria

Beekeeping in Akwu-Ukwu, Idemili South Local Government Area of Anambra State, Nigeria is practiced as a sideline to other agricultural activities. Based on the results of this study, there were no farmers that base their livelihood only on beekeeping. Based on their level of technological advancement, three distinct types of beehives were used by the sample beekeeper farmers in the area. These were local (traditional), top bar (intermediate or transitional) and moveable frame (box) hives.

Local or Traditional Beekeeping

This type of beekeeping practice covers the use of traditional techniques of harvesting honey and beeswax from bees, using various traditional styles of hives and other equipment. These hives are fixed comb type because the combs are attached to the top and sides of the hive itself and the beekeeper cannot remove and replace them. In some traditional hives only one end of the hive could be opened, but in most forms each end of the cylinder is fitted with a removable lead. During honey harvesting since many of the hives were “beyond the reach of a man’s arm” and only one end is worked at a

time, some combs would be left intact without being harvested. Based on the discoveries, the number of traditional hives owned per household has a mean of 7.75 with a maximum of 40 hives. The productivity from one traditional hive has a mean of 8.94kg/hive ranging 3kg to 16kg/hive which is harvested 1 to 3 times per year. As far as the shape of traditional hives is concerned, the cylindrical (100%) hive with a length ranging from 0.75 m and 2.00m and width of 0.2 to 1.0m was the commonly used type of hive by the majority of sample respondents. The variability of shapes of traditional hives mainly attributed to the climate condition of the area and the different honey production systems.

Reason for Involvement in Beekeeping and Experiences in Beekeeping

According to the results of this survey, reasons for involvement of the farmers in beekeeping are income generating activity (79.2%) followed by easy to perform with other agricultural activities (10.0%), income is used for different house expense (5%), inheritance from parents (4.2%) and due to training (1.6%). The level of beekeepers' experience was taken to be the number of years that an individual was continuously engaged in beekeeping. Reasons and sources for involvement in beekeeping are indicated in Table 7.

Table7. *Sources of Bee Colonies and Reason to engage in beekeeping in Akwu-Ukwu, Idemili South Local Government Area of Anambra State Total sample (n=120)*

Sources	%	Reason	%
Catching swarms	34.2	Income generating activity	79.2
Buying	25.0	Easy to perform together with other activity	10.0
Gift from parents	22.5	House expense	5.0
Training	10.0	Inherited from parents	4.2
Agri. Office	8.3	Training	1.6
Total	100.0	Total	100.0

Source of Foundation Colony and Apiary Site

When sample beekeepers were interviewed to describe their sources of foundation colony, 34.2 % of the respondents declared that they got their establishing colonies by catching swarms (hanging bait hives on the apex of trees) followed by buying (25.0%), gift (22.5%), training (10%) and Agricultural office (8.3%). Majority of the sample respondents (48.7%, 34.2% and 1.7% with traditional, modern and transitional hive respectively) keep their colonies around their homestead (back yard) mainly to enable close supervision of colonies. Some of the sample respondents (47.1, 5% and 0.8 with traditional, modern and transitional hive respectively), keep their colonies under the eaves of the house. Whereas few others (20.8%, 12.6% and 1.7% in modern, traditional, and transitional hive respectively) keep their colonies inside the house. Besides, 0.8% of traditional bee colonies were kept in forests that might have been for the sake of accessibility of bee forages (Table 7). The main criteria for apiary site selection of the sample beekeepers were: close supervision (17.5%), owned from ancestors selection (16.7%), availability of flora (15%), orientation to sunlight (13.3%), availability of water (10.8%), free from bee enemies and predator (6.7%), free from any animals and human disturbances (4.2%), combinations of criteria (4.2%), wind direction (3.3%), and the rest (3.3%) have no apiary selection criteria (Table 8).

Table9. *Criteria to select an apiary Total sample (n=120)*

Criteria	%
Availability of water	10.8
Availability of flora	15.0
Free from bee enemies and Predators	6.7
Close supervision	17.5
Area prevailing Wind break	3.3
Potentiality to beekeeping	5.0
Owned from ancestors	16.7
Free from any Disturbance	4.2
Orientation to sun light	13.3
Combinations of criteria	4.2
No selection	3.3
Total	100

Table8. *Placement of bee hive Total sample (n=120)*

Placement of keeping hive	Traditional (%)	Intermediate (%)	Modern (%)
Back yard	48.7	1.7	34.2
Under the eave	47.1	0.8	5.0
Inside the house	12.6	1.7	20.8
Hanging near home stead	-	-	-
Hanging in forest	0.8	-	-

Honeybee Colony Holdings and Service Years of the Hives

The average honeybee colony holding of the sample respondents for traditional, top bar and moveable frame hives were 7.75, 0.17 and 3.73 respectively (Table 9). Whereas the maximum service years of these three different types of hives were 40, 18, 42 years, respectively (Table 9). Although service years of moveable frame hive is usually more than 42 years the average

holding of the hive is low (3.73 hives per household). This indicates that the adoption rate of the technology is very low. This might be due to the distribution of frame hives without full technological packages (training and improved beekeeping accessories) which should be given due attention. Low adoption and disseminations of moveable frame bee hive is attributed to many factors like weak extension services, initial high costs, demand for its own seasonal management techniques and other accessory equipment, poor economic background of the beekeepers, lack of knowhow, and the like.

Incidence of Absconding and Migration

Honeybee colonies abandoned their hives at any season of the year for different reasons. According to the response of the respondents, absconding incidence of honeybee colonies was recorded in traditional hives.

Table10. *Reason for decreasing trend of hive product and colony Total sample (n=120)*

Problems	%
Lack of bee forage	17.6
Lack of water	10.9
Drought	16.0
Absconding	4.2
Pest and predator	5.9
Disease	3.4
Pesticide and herbicide application	11.8
Death of colony	4.2
Increase price of honey	1.7
Increase cost of production	8
Lack of credit	2.5
Bad weather	11.8
Poor management	9.2
Total	100.0

Conclusion

Akwu-Ukwu in Idemili South Local Government Area of Anambra State, Nigeria has adequate natural resources and a long tradition and culture of beekeeping. However, mainly because of lack of technological changes, institutional supports and access to market and value chain development, the district in general and the rural beekeeping households in particular have not been sufficiently benefited from the sub sector. Yet, despite all the constraints and challenges currently facing the beekeeping subsector, there are still enormous opportunities and potentials to boost the production and quality of honey products in Akwu-Ukwu, Idemili South Local Government Area of Anambra State, Nigeria. This was reflected by the various indigenous knowledge practices, production of quality honey, and diverse distribution of honeybee floras (in most part of the district), bee product processing and handling, and presence of different type of honeybees in the area.

The major constraints to exploit the untapped potential of beekeeping activity in the Akwu-Ukwu, Idemili South Local Government Area of Anambra State, Nigeria are lack of beekeeping equipment, agrochemical bee poisoning, shortage of bee forage, incidence of pest and diseases. At present improved beekeeping technologies are being introduced to the Local Government Area, the existing system of their management by the target groups was similar to the local type of beekeeping system. Majority of the beekeepers follow traditional colony management, harvesting and processing methods to produce honey and most are not in use.

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