

Assessment of Honey Market Structure and Its Influence on Poverty Reduction, Ghana

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Abstract

The purpose of this study was to examine the prospects of sustainable honey market structure for poverty reduction and improving livelihoods in the Berekum Municipality of Ghana. Questionnaires and interview schedule were the main research instruments used in gathering data. These were however supplemented with non-participant observation. In all, 52 respondents were randomly selected from Berekum Municipality. Questionnaires were administered to 41 bee-keepers and 11 honey traders who are the major apiculture actors in the Berekum Municipality. Cross tabulation, Mean, Line graphs, and Frequency tables were employed in the analysis of quantitative data. A narrative analysis was adopted for the qualitative data collected. Descriptions and quotations were also used in analyzing qualitative data. The results indicate that bee-keepers and honey traders have increased their income levels as a result of favourable honey market environment in the Berekum Municipality. Again, the results show that honey marketing in the study area have a lot of potential in reducing poverty and improving livelihoods through employment creation. Therefore, the study recommends that other institutions, government, and Non-Governmental Organizations should come on board to ensure the development of bee-keeping industry in the study area to reduce poverty and enhance living conditions.

Keywords

Bee-Keeping, Poverty Reduction, Livelihood, Honey Market Structure

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1. Introduction

Increased in poverty in many communities around the globe is as a result of rapid population growth. This has led to some consideration of major livelihoods activities where potentials of reducing poverty are enormous. Therefore, honey marketing is capable of reducing extreme poverty and improving rural livelihoods [3]. It is a promising non-farm economic activity for both rural and urban households of many countries in Africa like Ghana, Rwanda, Kenya, Angola and Cameroon [32, 17]. It contributes substantially to

the incomes of the bee-keepers and honey traders. Honey marketing activities in Africa have been recognized internationally because Ethiopia's total contribution of honey to the international market stands at approximately 39,700 tons per year, the largest in Africa, and around two million people are involved in the bee-keeping value chain [3].

In an attempt to fight poverty and improve livelihoods in Ghana, several governments have adopted programmes and policies such as Ghana Poverty Reduction Strategy (GPRS I), 2006–2009, the Growth and Poverty Reduction Strategy (GPRSII), 2010–2013 and the Ghana Shared Growth and

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Development Agenda (GSGDA), 2014 - 2017 [2]. In spite of the adoption of these programmes and policies, governments of Ghana have shown less commitment and action towards poverty reduction, in the sense that total poverty reduction expenditure declined from 34.6 per cent in 2013 to 22.3 per cent in 2015 and further went down to 21.3 per cent in 2016 [13].

A higher proportion of Ghanaians are engaged in crop farming (95.1%) compared to 0.2 percent of households who are engaged in non-farm agricultural activities such as bee-keeping and honey trading [13]. However, in recent times, a lot of Ghanaians are gradually getting involved in Bee-keeping which has the potential of reducing poverty and improving livelihoods of a greater percentage of rural and urban unemployed [27]. All the municipalities and districts in the Brong Ahafo Region show increasing trend of honey production. The region has a total number of 5,748 bee-keepers comprising 3,536 males and 2,212 females and 520 honey traders including wholesalers and retailers [39]. The average annual production of honey for 2014 was 94,088kg. A significant percent of the income of bee-keepers (48.9%) and honey traders (39.7%) is derived from honey production and sales of honey, followed by crop production [7]. It is obvious from the above illustrations that bee-keeping honey marketing is capable of generating employment, improving livelihoods and reducing poverty. However, the poverty reduction potential and honey market structure remain largely unexamined. This is imperative if we are to measure the contributions and the potentials of bee-keeping and its honey market structure as poverty reduction tool or strategy.

2. Literature Review

2.1. Bee-Keeping and Poverty Reduction

Bee-keeping is a low-investment and low-input business enterprise that directly generates economic gains for the participating countries in Africa and integrates well with agriculture that forms the main economic activities for communities living in rural areas [10]. It has been supportive in reducing poverty and improving livelihoods of many rural communities in Ethiopia, Rwanda, Burundi and Ghana [30]. Bee-keeping has been carried out across many generations in Ghana.

It is an undeniable fact that in Ghana, bee-keeping is a Promising Non-Farm Activity (PNA) for the rural households which is helping in reducing poverty and enhancing the quality of life. It plays a critical role in shaping the livelihoods of the rural communities in five native dynamics. Firstly, it is an income generating activity. Secondly, medicinal value of honey and other hive products

is invaluable. Honey is being used as a medicinal product in treatment of various ailments such as Bad breath, Sore throat, Cold and cough, Stomach ulcers among others and as a popular home remedy [28]. In addition, it supports agricultural activities through facilitating critical processes, for example, cross pollination and improves crop yields. Furthermore, it contributes immensely to forests conservation efforts and finally, it facilitates healthy linkages between biodiversity (insects and plants) towards sustainable livelihoods [33, 19]. Similarly, It is also imperative to indicate that bee-keeping has holistic contributions that relate to the economy (directly through sales of honey and other bee products, and indirectly through increased productivity of pollinated crops), as well as bee enterprise activities and the environment [39]. Bee-keeping can contribute to securing sustainable livelihoods by transforming vulnerabilities into security, combating soil degradation [26, 18].

In addition, bee-keeping generates off farm employment opportunities to majority of Ghanaians in many fields including hive producing, honey trading, renting and hiring of bee colonies for pollination, and bee-based micro-enterprises [1]. It can be carried out by small farmers, and is particularly suitable for under-privileged, landless, and low-income groups [20, 36] reiterated that Ghana is endowed with varied ecological zones and different flora which has a huge potential for bee-keeping. On the other hand, the roles of bee-keeping as income generation or diversification for subsistence farmers and generating foreign exchange earnings have been very minimal [31].

Bee-keeping activity is gradually gaining root in Berekum Municipality because it is estimated that more than eighty eight (50) farmers are involved in bee-keeping business using mostly the traditional and intermediate hives. Though bee-keeping activity in Berekum is scattered, it is quite substantial in the realm of employment. It could also be observed that a large number of people (intermediaries and traders) participate in honey collection and retailing at village, district and regional levels [6].

It is important to emphasize that there are other vital contributions of bee-keeping in an area of bee-keepers' living conditions such as settlement of school fees, payment of rent and utility bills. This study therefore concentrates on how bee-keeping industry is contributing to the living conditions of bee actors in the Berekum Municipality. It is in the light of this review that this study, again, examines the relationship between apiculture, employment and income and how they affect bee actors' livelihoods in Berekum Municipality which largely remains unexamined. It is important to observe the situation and make an attempt to find out how these influence livelihood outcomes and performance of bee-keeping within Berekum Municipality.

In conclusion, we notice from the above review in relation to contributions of bee-keeping poverty reduction that the sub-sector remains largely underdeveloped. This is because honey market and its potentials of reducing poverty has attracted little attention in the study area. As such, most bee-keeping farmers and honey traders have not fully appreciated its potential and value as a commercial enterprise capable of generating high income and sustaining livelihoods thereby reducing poverty among people [24].

2.2. Bee-keeping and Honey Market Structure

The analysis of marketing channel is intended to provide a systematic knowledge of the flow of honey from their origin (producer) to the final destination (consumer). The marketing channel is the sequence through which the whole of honey passes from bee-farmers to consumers. Honey market channel is derived from honey market structure [14]. Honey marketing participants in the market structure as producers/bee-keepers, honey collectors/assemblers, wholesalers, retailers and final consumers of the product from which marketing channels are formed [25]. The subsequent paragraphs highlight the responsibilities of each market participant.

To begin with, the producers sell their honey to different buyers at the village or district market centre [31]. The Small-scale farmers can sell bee honey directly to final consumers at the local village market, or on the road side. Also, producers sell bee products to a rural trader, processor, wholesaler or retailer [4]. The marketplace that is closest to the residence of the producer is the first choice with regard to minimizing transportation costs. In this case, bee farmers lose quite a substantial amount of money in bargaining with individual consumers because they lack information on honey prices elsewhere [11].

In the second place, Honey collectors are another group on the value chain who purchased the honey produced directly from farmers in a small village markets for resale to wholesalers, retailers, and consumers who come from different areas of the region at the municipal market center [35]. In addition, the honey collectors sometimes assume the role of wholesaler and the retailer by dividing large amount of honey bought from bee-keepers and sell it to consumers in small units. The majority of honey retailers or wholesalers have their own stores or retail shops where they sell honey [11]. Selling in the local village market may be good, but selling in urban markets may command higher prices. The choice of market place must be based around prices achieved for bee products, and the cost to reach such a location [38]. For example, selling at a village market may cost little in terms of transportation than selling at urban market. The

domestic market can further be sub-divided into rural and urban market. Prices in local/ rural market do not influence prices in urban market. The integration of these two markets will depend on the development of rural market [23, 15]. The rural domestic market is the lowest end of the honey market. Consumption of honey in the local communities is largely for medicinal purposes and to a small extent for nutrition. Development of this market has been constrained by low incomes of consumers, low patronage of honey and very little appreciation of the value of honey. The main outlets for honey in the rural setting are limited to open markets, table-tops, corner shops and street hawking by women and children [29, 23]. This has consequently resulted in low market prices for honey in rural markets. With gradual rise in rural incomes and the integration of wild honey hunters into bee-keeping programmes, it is expected that efficient honey value chains will be developed and the rural market situation for honey will be transformed. The value addition to honey is silent in rural marketing which eventually affects their level of income. The following were identified as the main advantages of adding value to bee honey. First, it can provide the small-scale bee farmer with more products to sell. Second, it can enable the small-scale farmer to tap into more and diversified markets. Third, it can enable small-scale farmers to have more control over the prices they set for their products. Fourth, it can generate more stable and regular revenue, excess produce and/or waste can be used more efficiently and finally, it can provide the opportunity to earn more profits. Similarly, small-scale farmers in rural areas living along the major roads can sell their honey with attractive packages along the road. Their product will be exposed to many retailers and consumers [12].

The urban domestic market for honey, on the other hand, consists of shops, supermarkets, vendors and pharmaceutical industry [21, 37]. The urban market has a gamut of honey products sourced locally and abroad. In urban markets prices of honey are higher than rural market due to the fact that producers will factor in the cost of transportation and the cost of setting up a store in pricing their products [34].

The researchers above agree that marketing honey both rural and urban is very crucial because it generates income to bee-keepers and honey traders. Urban market for honey is vibrant, sometimes, urban market for honey may not be sufficient to generate the necessary income. However, market development for locally produced honey to the urban market is adversely affected by negative practices that include adulteration of honey which is preventing consumers from patronizing urban honey. In line with this, there is lack of detailed market information between major honey users such as pharmaceutical companies and honey production centres which is a major constraint facing rural honey producers [23].

However, the international market for honey has not been exploited in Ghana to expand honey market. The international request for honey is estimated at about 10,000 metric tons per annum but virtually, as at 2017, no commercial quantities of honey have been exported from Ghana [5]. Over 60% of honey produced in the country is sold directly to retailers and 18.6% to final consumers [16, 22]. The capacity to produce the right quantities and quality of honey in Ghana is woefully inadequate.

3. Research Methodology

3.1. Site Description

Berekum Municipality is strategically located where roads from Sunyani, Dormaa, Jaman and Seikwa. It is located between Latitude 7°15'S and 8°00'N and Longitude 2°25'E and 2°50'W. The Municipal shares boundaries with Domaa East District to the South-West, Nouth-West by Tain and Jaman District, South – East is Sunyani West District. The Municipality has a total land area of 1,653 Km².

The Municipality in terms of trade is strategically located since it is able to transact business with all the four (4) other districts it shares boundaries with. The location of the Municipal makes transportation of goods and services to and fro the Municipality easy encouraging inter districts trade.

Table 1. Shows the Sample Size for the Study.

Berekum Municipality Communities	Actors		
	Bee-keepers	Honey Traders	Total
Berekum	31	11	42
Fetenta	2	0	2
Ayimom	2	0	2
Amomaso	1	0	1
Domfite	2	0	2
Kutire	1	0	1
Mpatase	1	0	1
Biadan	1	0	1
Total	41	11	52

3.2. Sampling Design, Data Collection and Tools for Data Analysis

This study employs a mixed methods approach utilizing both qualitative and quantitative data collected [9]. The major sources of data for this study were both primary (bee-keepers and honey traders) and secondary (theses, journals, internet etc.).

This study was conducted in September, 2018 in the Berekum Municipality. The study used a cross-sectional survey design which offers information about a population at a given point in time [8]. This design is intended to gain immediate knowledge and information on bee-keeping honey

market structure activities in the Berekum Municipality. It is very useful in obtaining an overall picture as it stands at the time of the study. This strategy assists in getting different data from different honey traders and bee-keepers. Data were collected using questionnaire, interview scheduled, focus group discussions and observation techniques. The reason why questionnaire was used in the first place, stem from the fact that the potential respondents were scattered over the municipality. Also, the administration of the questionnaire was less expensive. In addition, it saved time and financial resources. Finally, it was an efficient way to collect data statistically quantifiable and large respondents were reached within a short time period.

The rationale for using interview schedule stems from the fact that interview schedule provided a great deal of leeway for the respondents to reply to questions and it was able to help get in-depth information about the economic impact of bee-keeping activities on the respondents on a one-on-one basis. Also, because of its flexibility, more information was provided by the respondents. This interview schedule was basically used to elicit information from the bee-keeping value chain actors about how the activities of the bee-keeping were and had impacted on their livelihoods.

The honey market structure, market channels, quantity of honey traded within five years and exportation of honey in the study area were analysed. The respondents were allowed to demonstrate their perceived rate of either decreased or increased in honey trading through focus group discussions. The respondents were randomly selected from Berekum in the Berekum Municipality of Brong Ahafo of Ghana. The biophysical and socioeconomic characteristics of the study area made the selection of Berekum municipality for the collection of pertinent data to address the research problem. A sample size (n) = 52 of respondents was determined by $n = N/1+N (a^2)$, where n = sample size, N = total population of honey traders, a = 5% is the margin of error.

The quantitative data gathered were subjected to factor analysis. The factor analysis was used purposely to identify and examine direct and indirect drivers of both high and low honey trading and honey production in Berekum. Factor analysis aided to reduce many variables to a more meaningful number of variables and also assist in analysing the interrelationship among variables.

The figures or frequency tables generated in the SPSS version 20 were also exported to excel for editing to enrich visual presentation. Content analysis was employed to analyse the qualitative data by drawing inferences from the views of the respondents.

4. Results and Discussions

4.1. Socio-demographic Characteristics of Respondents

This section looks at the socio-demographic characteristics of

the respondents to establish the relationship between bee-keepers and honey traders and their socio-demographic characteristics which include gender, marital status, educational background and average annual income before bee-keeping.

Table 2. Socio-demographic Characteristics of Respondents.

	Bee-keepers	Honey traders	Total
Male	39	4	43
Female	2	7	9
Total	41	11	52
No school	3	1	4
Primary	9	3	12
Junior high school	12	1	13
Senior high school	10	5	15
University	1	0	2
Others	6	1	7
Total	41	11	52
Single	1	1	2
Married	38	10	48
Divorced	0	0	0
Separated	2	0	2
Others	0	0	0
Total	41	11	52
Farming	2	0	2
Other trading	7	0	7
Honey trading	20	11	31
Teaching	6	0	6
Carpentry	0	0	0
Bee-keeping	3	0	3
Auto mechanics	2	0	2
Others	1	0	1
Total	41	11	52
Average annual income before Bee-keeping	Bee-keepers	Honey traders	Total
501-1000	1	0	1
1001-1500	3	0	3
1501-2000	7	0	7
2001-2500	5	2	7
2501-3000	10	1	11
3001-4000	15	8	23
Total	41	11	52

Table 2 indicated that thirty nine bee-keepers were males while the remaining two (2) were females. The male dominance of bee-keeping in particular, may be attributed to the fact that females have not received the necessary support and encouragement to participate in bee-keeping. In addressing the situation, a male bee-keeper at Berekum said during Focus Group Discussion:

“There was not even a single female who was a bee-keeper ever since I started this bee-keeping activity and also joined bee-keepers’ association. Over the years, we have tried, as executives of the association, to encourage women to partake in bee-keeping management. With regards to this, we have ordered each male bee-keeper to involve his wife in the bee-keeping management. This will eventually enhance and increase women’s participation in bee-keeping” (Fieldwork, 2018).

Women participation in bee-keeping is very crucial in the

sense that women involvement in the industry will create employment for them and will enable them get extra income to cater for their household needs. This is a good signal of reducing poverty and enhancement of standards of living among women.

Although, women participation in bee-keeping is very abysmal, it is also a good indicator that women are now developing interest in bee-keeping activities.

Though male bee-keepers were many, there is still room for improvement for more men to partake in bee-keeping because it will enable them to get extra income to perform most of their basic responsibilities such as payment of utility bills, payment of school fees and providing accommodation to ensure sustainability and prosperity of their families.

Also, from Table 2, it turned out that out of eleven honey traders, seven were females while the remaining four of the respondents were males. It was realized during the survey

that few people were engaged in honey trading due to the fact that most of the honey producers sold their honey directly to final consumers. Honey traders testified that honey trading is a very profitable business. They pointed out that there is no way that one will run at a loss in honey commerce. Honey trading has assisted them in getting enough money. This has aided in reducing poverty and improving living conditions.

Based on the above facts, it can therefore be concluded that there were more men into bee-keeping than women except honey trading where women were more than their male counterparts.

Moreover, the survey revealed that most of the respondents had formal education and this is helping them to accept new ideas and innovations thereby enhances their willingness to produce more and increase volume of sales. In line with this, it was indicated that education had a significant effect on the quantity of honey produced and marketed. In support of above illustrations twenty-five actors had attained Senior High School (SHS) and vocational or technical education.

The results indicated that though education is essential to the enhancement of bee-keeping activities and high honey production, bee-keeping and honey trading can however be practiced by anybody irrespective of his or her educational background. To buttress this point, a total of three (3) and twelve (12) respondents had no formal education or Junior High education respectively. This means that bee-keeping and honey marketing as a practical non-farm activity require little or no education.

It can be concluded that honey trading or bee-keeping is capable of employing a lot of people who are unemployed due to inadequate formal education to reduce their poverty level and enhance their livelihoods.

Furthermore, findings indicated that there were more respondents who were ever married with at least two children than those who were single in the study area. The married respondents who were engaged in bee-keeping and honey trading activities have multiple responsibilities to perform in their households therefore getting extra income from these activities was a big liberation to them.

In addition, Table 2 illustrates the major occupations of the respondents. The data demonstrates that the majority, twenty (20) and eleven (11) of the respondents affirmed that bee-keeping and marketing honey were their main occupations and practiced cash and food crops as secondary occupations. This shows that bee-keeping and honey trading was conveniently practiced alongside other jobs such as trading, auto mechanics, cocoa farming, growing food crops, teaching to mention but a few. Managing bees does not affect any activity that will be performed by the bee-keeper. It was

confirmed by those respondents who have taken bee-keeping and honey trading as a full time job that they were getting enough money to perform their social responsibilities as family heads. Income received from bee-keeping and honey trading activities were very useful in supporting family basic needs.

It can be inferred from the above discussions that bee-keeping and honey trading is a very convenient and sustainable field that the youth who are unemployed should be encouraged to involve themselves in bee-keeping and honey trading either as a full time job or as a secondary career. This will go a long way to help reduce unemployment rate, poverty level as well as improving living standards in the study area.

4.2. Honey Market Structure in the Berekum Municipality

The analysis of marketing structure is intended to provide a systematic knowledge of the flow of honey from their origin (producer) to the final destination (consumer) highlighting all the participants involved [25]. They identified honey marketing participants as producers, wholesalers, retailers and final consumers of the product from which marketing channels are formed. Honey market structure consists of a number of channels which is the sequence through which honey passes from bee-farmers to consumers. The diagram below shows the main honey market structure and its channels in the study area during field survey.

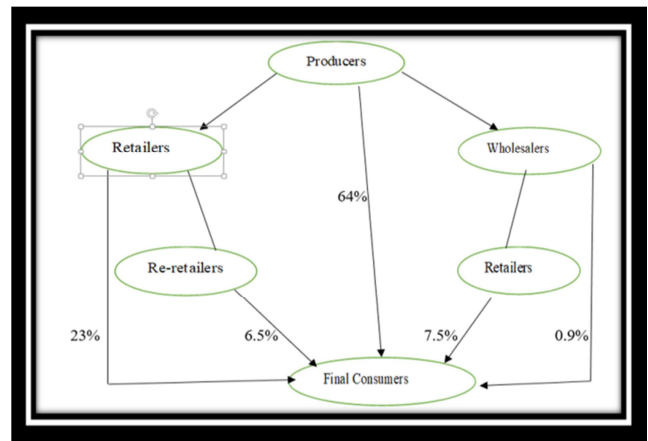


Figure 1. Honey Market Structure in the Berekum Municipality.

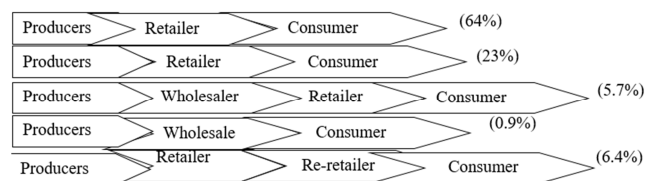


Figure 2. The Various Channels Derived from Honey Market Structure

The Various Market Channels Derived from the Market

Structure in the Study Area is shown in figure 2.

From the above illustrations, it is very important to note that honey marketing creates a lot of employment opportunities to many people like bee-keepers, wholesalers, retailers and re-retailers. Each participant in the market structure benefits financially from trading in honey except consumers. In Figure 1 for instance, bee-keepers obtained money by selling honey to wholesalers, retailers, and consumers. Again, wholesalers get money by selling honey to retailers and consumers likewise the retailers. Money acquired by the participants is used in supporting household expenditures, improving their living standards and more importantly reducing their poverty levels.

Bee-keepers in Berekum unanimously affirmed that a greater percentage (64) of honey producers sell their honey directly to consumer as shown in Figure 1. The reason given by the bee-keepers in this regard was that the dominance of consumers in the honey market structure was as a result of most consumers in the municipality use honey as a table food, preparation of herbal drugs and concoction of other drugs. The majority of honey producers selling honey to the final consumers buttress the assertion that small scale bee farmers can sell honey directly to the final consumer at local market or on the road side [5]. In the same way, either most part of honey is sold to consumer or few are sold to retailers in other communities. For this reason, Bee-keepers may forfeit some appreciable amount of money when they sell their honey directly to the consumers because bargaining for better price of honey would be a huge challenge to the bee farmers. They

added that they also reside with some consumers and see them as relatives therefore charging appropriate prices become difficult.

However, few quantities of honey is sold to wholesalers in figure 1. The respondents confirmed that the cause of low patronage of honey by wholesalers was due to the fact that currently, honey is not exported in Ghana. They argued that honey production has progressively increased over the last five years (refer from table 5) and in most cases there was an excess of honey in stock. This excess sometimes remained in their custody for the whole year. So they were of the view that getting international market will be a huge liberation to them and can even boost honey production. However, there is more to it than it appears when it comes to exportation of honey abroad. The honey must go through a thorough examination under the Ghana Standard Board to ensure its quality. The process takes time and involves money. Are the honey producers ready and willing to wait and pay this amount? It may not be so.

The bee-keepers further stressed that the pharmaceutical companies and other companies which could have used honey in preparation of drugs and cosmetics are few in Ghana. They justified this by indicating that few of such companies demand honey from them.

In terms of variations of places where honey is normally sold in the municipality, house and urban market are better than other places. The results are presented in Table 3.

Table 3. Areas where Honey is sold in the Berekum Municipality.

Area	Berekum	Fetentaa	Amomaso	Biadan	Ayimom	Domfite	Kutire	Mpatase	Total
farm gate	3	0	0	0	0	0	0	0	3
Urban market	10	0	0	0	0	0	0	0	10
house	24	2	1	1	2	2	1	1	34
Through hawking	5	0	0	0	0	0	0	0	5
Total	42	2	1	1	2	2	1	1	52

Table 3 highlighted places where honey is sold in the Berekum Municipality. Findings indicated that twenty-four (24) of the bee-keepers representing the majority stated that the main point of sale of honey were in the homes of the bee-keepers. From the same Table 3 at least one bee-keeper in other communities such as Fetentaa, Amomaso, Ayimom and others sold honey in the house. Why consumers, retailers and wholesalers preferred buying honey from the house than from the market? The reason given by the bee-keepers was that marketing honey in the house to some extent assured the wholesalers, retailer or consumer of honey's quality. It is also a nice platform to clear the minds of the wholesalers, retailers and consumers about the fake or diluted honey on the market.

It must be emphasized that none of the market participants has ever lodged a complaint about the quality of the honey

ever since they started buying honey from their homes. This has assisted the market participants developing faith in their products. The consumers and honey traders know that sometimes honey can be concocted, perhaps, the reason why they traced the sources. Honey producers selling honey in the house is very beneficial and profitable to some extent because they did not transport honey to market and for that matter transportation cost is added to their income. This will eventually reduce their poverty levels and improve bee-keepers' living conditions. However, other areas where honey is sold included farm gate, urban market and through hawking.

The international market has largely not been exploited in the Berekum Municipality and for that matter in Ghana. Over 60% of honey produced in the country is sold directly to retailers

and 18.6% wholesalers and the remaining 21.4% to final consumers [25].

Table 4. Exportation of Honey in the Study Area.

Exportation of honey	Response	Bee-keeper	Honey trader	Total
Reasons why honey is not exported	-No access to international market	26	7	33
	-Low production	3	0	3
	-No international demand for honey	12	4	16
Total		41	11	52

It can be seen from Table 4 that about twenty six bee-keepers and seven honey traders representing the greater part assigned reason for their inability to export honey to other countries in the world. Their reason was that they did not have access to international honey market. Other basis given was that there was no international demand for honey from them. However, honey producers and traders could earn more money if they could get access to international markets. Exporting honey will generate employment to a large number of citizens in the study area. This, consequently, could lead to poverty reduction and enhancement of livelihoods in the study area. The results confirmed that the entire value chain actors in Berekum Municipality did not export honey to any country around the world unlike China and Ethiopia who are the leading producers and exporters of honey in the world and in Africa. They are able to produce 2,000,000 tonnes and 200,000 tonnes of honey respectively, annually [4].

Generally, there is adequate market for honey in the municipality throughout the year. However, due to expansion and increasing number of new bee-keepers, some unusual excess of honey occurred. The relationship among market participants are very efficient and strong. As a result of that producers do not advertise their honey on any social media platforms such as Internet, Radio and Television. The market participants advertised the product by themselves. The producers confirmed that though they are not advertising their product, people from all places in Ghana come to buy honey from them.

It was observed during the field survey that honey market in the municipality is facing a couple of challenges. Occasionally some honey buyers such as wholesalers and

retailers who buy honey on credit basis from the producers failed to honour their promises. In this case, most honey traders owned honey producer and even some market participants did not pay at all. This has affected their income levels. The next pressing challenge is the honey price determination. Though it has been established that honey market prices are determined by the forces of demand and supply, but in most cases prices for honey are far below their expectations. This sometimes discourages the producers from producing more honey.

To conclude, Marketing honey in the Berekum Municipality did not depend on international market. Rather honey produced is normally consumed by the people in the study area and people from other districts and municipalities in the country. The honey market is vibrant in the study area because there is always a ready market for honey. As a result, whatever quantity of honey bought or produced, would eventually be sold.

4.3. Summary of Income Analyse of Honey Traders in Berekum

At this juncture, it is very vital to discuss issues surrounding income of honey traders. Honey trading is another supplementary job in the municipality. It was observed during the survey that honey trading is mostly done by the market women. Table 5 gives a summary of statistical analysis of income sustainability of honey traders in Berekum with regards to cost incurred and profits realized within the last five years.

Table 5. Summary of Income Analyse of Honey Traders in Berekum.

Year	Average no of Gallons of Honey sold	Average Cost price per gallon	Average Selling Price per Gallon	Average Profit per gallon
2013	860	80	100	20
2014	1,000	90	125	35
2015	1,400	100	130	30
2016	1,700	110	145	35
2017	2,247	120	150	30
Total	7,207	500	650	150

Table 5. Continued.

Year	Average Total Income per annum	Average Expenditure per Annum	Average net per capita income	Average change in per capita income
2013	25,800	840	2,269	2,269
2014	35,000	1,415	3,053	784

Year	Average Total Income per annum	Average Expenditure per Annum	Average net per capita income	Average change in per capita income
2015	42,000	1,715	3,662	609
2016	59,500	2,115	5,216	1,554
2017	67,410	2,624	5,889	673
Total	229,710	8,709	20,089	5,889

It must be emphasized at this point that the average total expenditure in Table 5 was obtained by adding the following items in Table 6.

Table 6. Expenditure for Trading in Honey.

Total Expenditure for Trading in Honey
Materials for packaging
Transportation cost
Tax from municipal assembly
Cost of honey per gallon
Other cost

Findings indicate that the highest total number of six litres gallons of honey sold by the eleven honey traders was recorded in 2017. An average of two thousand, two hundred and forty seven gallons of honey was sold. They were able to maximize net profit of five thousand, eight hundred and eighty nine Ghana cedis at the selling price of one hundred and forty Ghana cedis. In the same way, the lowest quantity of honey sold was witnessed in 2013. Honey traders sold a total of eight hundred and sixty gallons of honey and made a total net profit of two thousand, two hundred and sixty nine Ghana cedis. It is very necessary to indicate that the total average expenditure in both 2017 and the remaining years were far less than the mean total income accrued from trading in honey. The disparities that exist between prices and profits emerged from the fact that honey traders sell their honey at different prices, different seasons and also deal with different customers [10]. For this reason, there is no uniform

price on the market hence different profits made. It is deduced from the findings that the income accrued is reasonably significant to lessen poverty level and improve living standards.

The income realized from selling honey is very sustainable for the reason that most honey traders have been in the business for the past nineteen years. In terms of getting access to honey from the producers is not a difficult task, and whatever quantity bought would be sold. Generally, there is progressive demand and the sales of honey in the Berekum Municipality. To authenticate this, a female honey trader in Berekum confirmed that she has been in this business for the past twelve years and always customers come from all over the country to buy honey from her. She reiterated that she had contracted two other women who sell honey during the market days through hawking. She further indicated that honey trading has been very beneficial to her in looking after her children after her husband travelled abroad for the past eight years. Therefore, honey trading is a very rewarding business which provides sufficient income to support family’s expenditure such as paying school fees, rents, building houses and other essential activities.

In Figure 3, line graphs were used to depict the trend of average total gallons of honey sold, average total income per annum, average expenditure per annum and average net income.

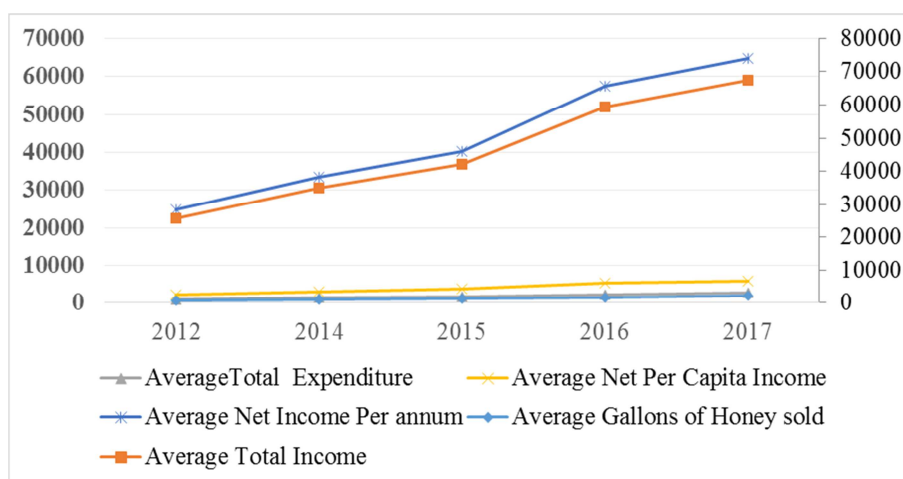


Figure 3. Trend of Honey Trading and Income Analysis in Berekum.

These findings in figure 3 are to determine whether honey trading activities in Berekum are increasing over the years. Without a doubt, findings indicate that there is positive

upward increased in honey activity over the five years period in Berekum portraying that honey trading is sustainable. It is an undeniable fact from Table 5 that the average total

expenditure per annum was far lower than the average total income accrued from honey trading therefore honey traders earned enough income to support their family's expenses such as paying rent and other essential things. It is deduced from the above findings that the income accrued is reasonably significant to reduce their poverty level and improve their living standards.

5. Conclusion

The research questions, the study objectives and propositions have been adequately addressed in the previous chapters. The problems identified have been examined and a summary of key findings highlighted above. This section presents the conclusions of the study based on the discussions of the evidence derived from field survey.

The study was conducted with the objective of understanding the bee-keeping as a livelihood activity of apicultural production in reducing poverty in the Berekum Municipality of Brong Ahafo region with specific focus on bee-keeping honey market structure. Honey trading has been identified in the Municipality as a major cash income generating commodity among honey traders.

When the sub-sector is given appropriate support, bee-keeping has great potential to create employment and generate income as well. Bee-keeping is currently undertaken largely on a part-time basis to complement other sources of income. About ninety percent of the respondents practiced honey trading as their secondary occupation. Evidence from the field also suggests that the level of interest in bee-keeping as a full-time employment in the sub-sector is high in the study area. It is rather untoward that only two respondents have taken honey trading as full time business. Therefore, there is a need to publicize and showcase the bee-keeping products for people to develop an interest in it.

Honey trading is an economically viable activity. When effectively supported, it can be the pillar for reducing poverty and enhancing economic development among the vulnerable in the society. Throughout the Berekum Municipality, there is a huge potential for the sub-sector to complement other interventions to promote rural livelihoods. There are virtually no barriers for entry. For example, it requires less labour input, low income and can conveniently be combined with other economic activities as shown by the results. The vibrant international market and growing domestic demand offer projections for the export of top quality honey from Berekum. Hence, a large pool of Berekum's population should be encouraged to take honey trading as a means of livelihood activity.

6. Recommendations

The recommendations presented herein seek to improve production and income levels in the honey sub-sector and contribute to the promotion of livelihoods and poverty reduction based on honey production.

There is the need for strong advocacy and dialogue with government towards a municipal policy on apiculture. In this regard, there is a need for government to gradually place the honey sub-sector on the national agenda as a sub-sector that can contribute to livelihood promotion and poverty reduction through value creation. Government can get revenue from honey production through taxes if properly structured.

Areas identified in the field for capacity development include hive and colony management, improved methods of honey harvesting, processing and packaging. It is possible to deal with the above by promoting training through certificate or diploma courses in apiculture.

There is a growing demand for honey internationally. So government, NGOs, and other stakeholders should come on board to improve the quality and the quantity of honey for export. This could be done through awareness creation, intensive training, experience sharing, public meeting and workshop should be organized for the bee-keepers. Honey traders can again organize exhibition at vantage points to inform consumers and other people who are interested in their products in order to attract market.

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