ASSESSMENT OF THE PERFORMANCE OF WONCHI BEEKEEPERS' ASSOCIATION: A CASE OF WONCHI DISTRICT, SOUTH WEST SHOA ZONE OF OROMIA, ETHIOPIA

Taye Beyene
Adami Tulu Agricultural Research Center
Zeway, **ETHIOPIA**
&
Marco Verschuur
Van Hall Larenstein University of Applied Sciences
Coordinator of Professional Master Program Agricultural Production Chain Management (APCM)
Specialization in Livestock Chain, the **NETHERLANDS**

ABSTRACT

Assessment of the performance of Wonchi beekeepers association was conducted in Wonchi district of Oromia regional national state from mid July to September, 2013 to find out the major factors that influencing beekeepers not being a member of Wonchi beekeepers association. For this study, two Peasant Associations (PAs) were selected using purposive and simple random sampling techniques to select 64 beekeepers (32 members and 32 non members of beekeepers association) and 3 honey value chain supporters, 2 honey retailers and a total of 69 respondents were selected to collect the required data. The interview was conducted using pre-tested structured questionnaires which include both close and open-ended questions to collect the required information. Descriptive statistics was employed to describe qualitative variables, while statistical test such as independent samples t-test was employed to test continuous variables. Value chain map tool was employed to show quantitative and qualitative data collected during field survey, while the spider web model tool was used to assess the performance of the association. The results of the study revealed that high entrance fee 47.2%, not fulfill the criteria of membership 30.6%, lack of adequate information 19.4%, application unaccepted 13.9% and absence of interest 5.6% are the main factors that influencing beekeepers not being a member of association. Wonchi beekeepers' association was scored low performance in the area of service provision, long term prospective, relationship with other stakeholders and membership base. The average of market distance members and non member association traveled to arrive at nearest market was 9.28 km and 21.5 km respectively. There was significant difference at ($p < 0.01$) between members and non members of beekeepers association to arrive at nearest market. The average amount of honey yield annually per traditional hive of members and non members of association was 11.44 ± 1.106 and 8.22 ± 0.083 Kg respectively. The mean yields obtained from transitional hive of two groups were statistically significant at ($p < 0.05$). The mean yield obtained from modern hive of members and non members of beekeepers association was (14.67 ± 2.420 and 9.24 ± 0.073 kg), respectively. There was significant difference between the two groups at ($p < 0.05$) with respect to honey yield from modern bee hive. Hence, the study of the cause of low member participation into association would be helpful in designing strategies that are capable of polarizing new members to beekeepers association.

Keywords: Beekeepers, association, Wonchi district, services, honey, membership and performance.

INTRODUCTION

Ethiopia is a leading bee honey producer in Africa and one of the ten largest honey producing countries in the world. Ethiopia has a share of around 23.58% and 2.1 % of the total Africa and world honey production, respectively. This makes Ethiopia the leading honey producer in

Africa and one of the 10 largest honey producing countries in the World (Ayalew, 1990). Large and diverse botanical resources combined with suitable climatic condition make the country favorable for beekeeping sector (Nuru et al., 2001). Ethiopia has a potential to produce about 500,000 tonnes of honey and 50,000 tonnes of beeswax annually, but currently the production is limited to 43,000 tonnes of honey and 3,000 tonnes of beeswax (MOARD, 2008). Despite the favorable agro ecology for honey production and the number of bee colonies the country is endowed with, the level of honey production and productivity in the country remains low. One of the prominent factors for this low honey productivity is the traditional hives. Due to the usage of such hives and inadequacy of matched management practices suitable for the type of honey bee races their environmental condition, the annual average honey yield per colony is relatively low (Nuru, 2007).

Wonchi district is one of the 11 districts South West Shoa Zone of Oromia regional national state and well known with honey production. It produces big volume of honey annually which estimated about 62,975 kg. The district has potential for beekeeping activities because relatively covered with rich natural resources and thus the apiculture is immense in it. In the district, where there is a high potential of natural resources, honey production is entirely a mean of income for small scale farmers. In this area, most of the beekeepers keep bees and use the income generated from that to purchase grains, agricultural input, clothes and to pay land tax. However, despite its potential role in the development of rural economy, the beekeeping sector faces several major problems such as lack of beekeeping skills, inappropriate production technologies, weak market access, weak price incentive systems, and limited financial capacity of beekeepers (Wilson, 2006 and Melaku et al., 2008).

To address these challenges, there is a national interest in linking small scale farmers with agricultural marketing chains. Access to market, credit service, new technologies and risk reduction are some of the benefits for farmers from producers association. Small-scale farmers are often reluctant to adopt new production technologies because of the risks and costs involved (Wonchi Beekeepers Association unpublished data, 2013).

Currently, the Ethiopian Government and different NGOs have realized the importance of introducing the producers' association as a strategy of linking small-scale farmers with agribusiness firms. For example, in Wonchi district the NGO working on honey production took the initiative of linking the producers' association and small scale beekeepers lead to solve the problems of market access, input supply and credit services (Wonchi Beekeepers Association unpublished data, 2013).

Wonchi beekeepers association was established in Wonchi district located in South West Shoa zone of Oromia regional state in 2006 by a group of 21 local beekeepers with the support of NGO called German Technical Cooperation (GTZ). The main objective of the establishment of the association was to solve the problems associated with low production and productivity, quality, market access and deforestation. To achieve this objective, GTZ provided for the association technical support and input supply such as modern bee hives with accessories and training. Until 2010, Wonchi beekeepers association was part of Wonchi eco-tourism association but in 2010 a group of 40 beekeepers have created an independent association called Wonchi beekeepers association with the support of NGO called Slow Food foundation (Wonchi Beekeepers Association unpublished data, 2013).

Currently, the association is doing different activities such as honey producing, collecting, processing, packing, labeling and sold the processed honey in glass labeled jars in the

national and international market. The association also has begun to collect and process beeswax and has started to export to foreign market such as Italy. Despite the great role played by Wonchi beekeepers association in solving the problems of local beekeepers, the number of beekeepers joined to the association is still low compared to the potentiality of that area. As a result of low members' participation, the association procurement is a low volume of honey and force to work under its capacity. Due to the reduction in volume of honey supply to the association, the current levels of honey collecting, processing and marketing activities are not large enough to have significant impact on the income of smallholder beekeepers because the quantity of honey collected is low compare to the operational capacity of the association. According to Karunakaranr et al (2013), low institutional capacity, inadequate qualified personnel, low entrepreneurship skills, inadequate financial resources, inadequate market information, poor members' participation in different activities such as financing the cooperative, patronizing the business activities of the cooperative, shareholding, control and support cooperative are the major constraints cooperative societies are facing.

Research Questions

(1) What is the current potential of honey production in the Wonchi district?
(2) What is the performance of Wonchi beekeepers association in honey value chain?
(3) What are the main functions of Wonchi beekeepers association?
(4) What are the different factors that influence beekeepers not being a member of Wonchi beekeepers' association?

MATERIALS AND METHODS

Study area

The study was conducted in Wonchi district located south West of Addis Ababa the capital city of Ethiopia. It is one of the administrative regions under South West Shoa Zone of Oromia regional national state. Wonchi district is 155 km from Addis Ababa. The topography of the study area ranges gently sloping to hilly lands with ridges and valleys in between. The district lies at latitude of 8°40′ N and 37°55′ E and an altitude ranges from 1700 to 3380 meters above sea level. The rain fall is bimodal, the long rain fall occurs from June to September and the short rain fall occurs from March to April with the peak record usually in July and August. The mean annual rain fall ranges from 1650 to 1800 mm with the average minimum and maximum temperature is 10° C and 30° C, respectively. The total surface area of the study district is 475.6 km^2 with a total population of 1, 19736 with the proportion of 58,671 male and 61065 female (District Agricultural and Rural Development office, 2013). Two agro-ecological zones are indentified in Wonchi district. These are high land (Dega) which account for 40% and mid high land (weynadega) which covers 60% of the district. The major soil types found in the district are black soil 11%, red soil 46% and mixed soil 43%. The main crops cultivated in the district are: teff (Eragrostis teff), barley, wheat, maize, sorghum, chickpea, bean, pea, lentil and haricot bean. The major livestock reared in the District are: cattle, horses, donkey, goats, sheep, mules and poultry. They also engage in beekeeping activities parallel to the above activities. Mixed crop and livestock farming system is the mode of agriculture practice in the district.

Sampling and data collection methods

Before the actual implementation of field survey, discussion was made with head of Wonchi district livestock resource, development and health office and Wonchi beekeepers association general manager to select sites and respondents. Based on the information obtained, two peasant Associations (PAs) were selected with the criteria of having large number of participants in beekeeping, beekeepers' experience and potential area for beekeeping. In order to conduct a survey, a purposive and simple random sampling technique was employed to select 64 beekeepers, 3 honey value chain supporters, 2 honey retailers and a total of 69 respondents to collect the required information. The total beekeepers of two PAs were stratified in two strata: 32 beekeepers members of beekeeper' association and 32 beekeepers non members of beekeepers' association. The size of the two groups was determined based on the probability proportional to size principle. A one-on-one interview was conducted with respondents using pre-tested structured questionnaires which include both closed and open-ended questions. Visual evaluation was also another method of data collection. Series of visits to the district livestock resource development, and health office, district cooperative development office, Wonchi beekeepers association general manager and honey retailers were conducted to get information and have a visual evaluation as well as on the current scenario of each actor in honey value chain.

Sources of data and analytical techniques

Primary data were used for this study**.** These data were obtained using pre-tested structured questionnaires to collect required data on: socio-economic characteristic of respondents (Age, sex, family size, honey yield, years of experience in beekeeping, educational level, religion and main source income).Questionnaire interviews and visual observation of each beekeeper were conducted in the. Descriptive statistics was used to describe qualitative variables, while some statistical test such as independent sample t-test and chi-square were also employed to compute continuous variables and test of association respectively. Means were separated using least square significant difference whenever they statistically significant at ($p < 0.05$).Value chain mapping was implemented to show both quantitative and qualitative data collected during the field survey, while spider web model was employed to assess the performance of Wonchi beekeepers association using different indicators such as membership base, products, services, staff capacity, financial management, long term perspective, sales and relationships to score which parts of the association are performing well and where the gaps are there. SWOT (strengths, weakness opportunities and threats) was employed in the analysis honey value chain.

RESULTS AND DISCUSSION

The results from the interviewed during the field study were summarized and presented in the following chain map.

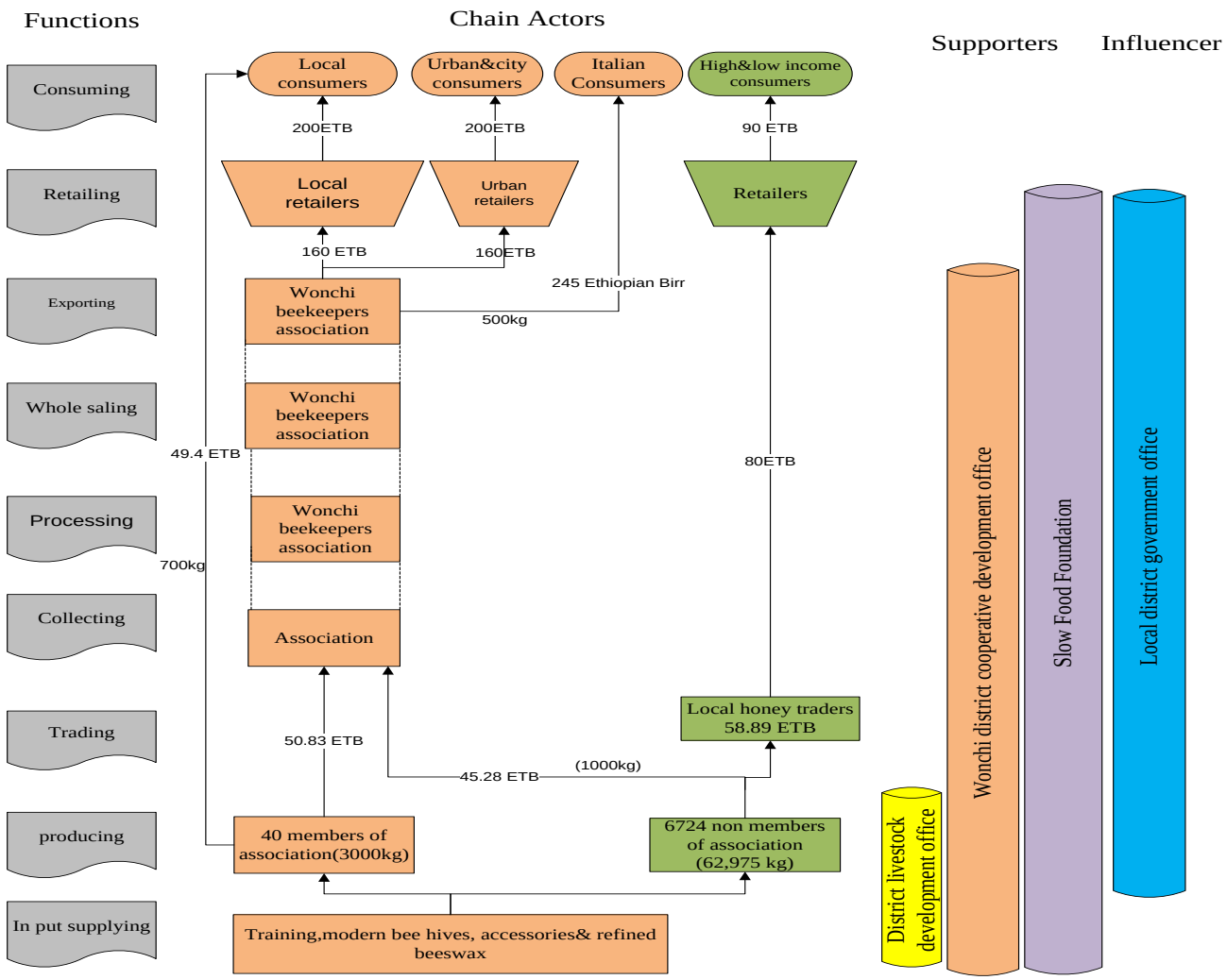

Figure 1: Honey chain map of the study area

Demographic characteristic of honey producers

Demographic characteristic of the respondents with structured questionnaires during survey are presented in the following section.

Sex

Out of the total respondents, about 94.4% of the interviewed small scale beekeepers involved in honey value chain were males, whereas 5.6% involved in honey value chain were females. This survey result indicated that male take the largest share to be engaged in beekeeping activities in the study area. Beekeeping activity is mostly practiced with the traditional method of honey production by using local bee hives. The traditional hives are hung on big tree branches in which some of trees are as long as 50 meters and above. That is, it is so difficult for the female to perform such beekeeping activity.

Age

The members of the beekeepers association who involved in honey production had an average age of 48 years old, whereas non members of the association had an average age of

50 years old. This result indicated that farmers in the most productive age are actively engaged in honey production from both groups with having a moderate beekeeping experience. However, the chi-square test of association indicates that there is no association between age of respondents and being a member of beekeepers association.

Religion

Regarding to the religion of respondents all (100%) respondents are orthodox followers. This survey result indicated that orthodox religion is the most dominate religion in the study district. However, the chi-square test of association indicates that there is no association between religion of respondents and being a member of beekeepers association.

Educational background

Out of the total interviewed beekeepers, all (100%) of members of beekeepers association were attended primary and secondary school. On the other hand, the numbers of non members of beekeepers association who can write and read were 66.7% and 33.3% were illiterate or who cannot read and write. However, the chi-square test of association indicates that there is association between the educational level of the respondents and being a member of the association.

The main source income of the respondents

Table 1: Rank of the main source of income by the respondents in Wonchi District

Activities	**Freqency of ranks**						**Wieghted**	**Rank**
	1st	2nd	3rd	4th	5th	6th	index point	
Livestock	0	8	20	7	0	1	142	3rd
Tourisim	3	2	4	15	3	9	104	4th
Petty trade	0	0	1	3	1	31	46	5th
Beekeeping	7	20	7	2	0	0	176	2nd
Crop production	26	6	4	0	0	0	202	1st

The survey results indicated that crop production is the first source of income followed by beekeeping activity in the study area. Income preference matrix ranks crop production first because the district has large area of highland and mid-altitudes that favor cash crops, horticultural crops and enset production. Beekeeping ranks second because bees' products are used as food, to generate income, for their cultural value and medicinal value, pollination service, etc.

Independent sample t-test of continuous variables

The survey result indicated that the average amount of honey harvested per hive per year from traditional hive of the members and non members of beekeepers association was 11.44 kg and 8.22 kg respectively. There was significant difference between members and non members of beekeepers association at ($p < 0.05$) in honey yield per traditional hive. The mean yield obtained from modern hive of members and non members of beekeepers association was 15 kg and 9.24 kg respectively. The mean yield obtained from modern hive of members and non members of beekeepers association were statistically significant at ($p <$

0.01). The interviewed members of the association stated that input supply such as training, advice and modern bee equipments from NGO and beekeepers association helped them to improve honey yield and quality. The mean of market distance members and non members of beekeepers association would travel to arrive at nearest market was 9.28 km and 21.5 km, respectively. There was significant difference between the two groups at ($p < 0.01$) with respect to the distance traveled to arrive at nearest market. The mean transportation cost of members and non members' association charged was 19.67 and 42.2 Ethiopian birr, respectively. The mean transportation cost of members and non members of association were statistically significant at ($p < 0.05$). The survey result indicated that non members of the association were traveled long distance to arrive at nearest market and were charged more money for transportation cost when compared to members of the association. The mean of honey purchasing price per kg of members and non members' association at association center was 50.83 and 45.28 Ethiopian birr respectively. This study result indicated that there was significant difference between two groups at ($p < 0.01$) with respect to honey purchasing price but there was no significant difference between two groups at ($p > 0.05$) in average honey purchasing price per kg at farm gat, local market and nearby towns (Table 2).The association is purchasing the honey of its members with high price because the association supervised and led interventions during honey production. Thus, the association knows more about the quality of hive products of its members than non members. The association also makes favor its members a means of encouraging and try to prevent side selling.

Table 2: Independent sample t-test of continuous variables between members and non member of association

*** Significant at α=0.01, ** Significant at α= 0.05, *Significant at α=0.1, NS-Non-significant

Variables	Member ± SE (N=32)	Non member ± SE (N=32)	T-value
Age of respondents	47.56 ± 2.861	48.89 ± 4.101	0.791NS
Family members	7.94 ± 0.693	6.83 ± 0.466	0.192NS
Number of traditional hives owned	9,33±1	7.94±1.181	0.376NS
Number of transitional hives owned	0	0.22±0.222	0.324NS
Number of modern hives owned	1.06±0.308	0	0.002***
Frequency of honey harvesting	1.11±0.076	1.22±0.101	0.386NS
Average honey production of traditional hive (in Kg)	11.44±1.106	8.22±0.083	0.026**
Average honey production of modern hive (in kg)	14.67±2.420	9.24±0.073	0.001**
Total honey production per year (in kg)	77.83±11.487	48.736±5.642	0.003***
Average of selling price of honey per kg at local market	58.89±1.833	55.28±2.507	0.253NS
Average of market distance (in km)	9.28±2 .969	21.501±3.104	0.007***
Average of transportation cost incur (in birr)	19.67±4.528	42.2±27.085	0.011**
Average of selling price of honey per kg at farm gat	46.94±2.585	43.67±1.793	0.075NS
Average of selling price of honey per kg at the association center	50.83±1.774	45.28±1.028	0.010***
Average of selling price of honey per kg at nearby town	61.39±1.799	57.22±1.772	0.108NS

FACTORS INFLUENCING FARMERS NOT BEING A MEMBER OF BEEKEEPERS ASSOCIATION IN THE STUDY AREA

High entrance fee

Out of the total interviewed household, 47.2% of non members of beekeepers association were stated that high entrance fee is the main reason for not being a member of association. Currently the association's initial entrance fee for new entrant is about 5000 Ethiopian birr or (265 US$). The association general manager was explained during the interviewed, in 2006 when the beekeepers' association was established, GTZ was distributed two modern bee hives with accessories for every members of the association. These hives were registered as fixed asset of the association. Every new entrant should pay the cost of these hives and accessories to be a member of the association. This was added the cost of entrance fee and influence most beekeepers that have interest to join the association.

Not fulfill the criteria of membership

From the total respondents, about 30.6% of non members of the association stated that not fulfilling the criteria of membership of the association is the main reason for not being a member of the association. According to the district cooperative development head office there are the settled criteria for new entrants. These criteria are: Every new applicant should have bee colonies from their home for the initial work, the applicants should have enough capital to pay entrance fee, the age of applicants should be 14 years old and above and the applicants should be the residents of the same village. Most of the interviewed farmers stated that they did not fulfill all these criteria for being a member of the association.

Lack of adequate information

Out of the total interviewed beekeepers, 19.4% of non members of the association stated that lack of adequate information technology such as telecommunication and extension services are the main reason for not being a member of beekeepers association. The interviewed beekeepers explained that they do not know even the existence of beekeepers association in their district and the activities performed by beekeepers association. This survey showed that most of the district beekeepers did not get adequate information from extension workers and no shared information with other farmers. Moreover, an information technology such as telecommunication is not widely developed in the study area. Wonchi district has low information technology development compared to other districts in the Zone. This highly influences the farmers to get updated information and shared information with other beekeepers to develop positive attitude towards the benefit of association.

Unaccepted Application

From the total interviewed beekeepers, 13.9% of non members of beekeepers association stated that their application unaccepted by association is the main reason for not being a member of association**.** The respondents explained during the field survey that some of the beekeepers were sent their application paper to association for the question of being a member of the association but their application was not accepted by the association. The reason of rejection is the unsatisfactory criteria for membership. Moreover, the association was demarked the production site called haro Wonchi village close to Lake of Wonchi. This

site was studied and identified by the slow food foundation NGO. They believe that honey from this site has high medicinal value and organic in nature because of this area has indigenous tree species such as Egynia Abyssinica and free from agrochemical application. The association is organizing beekeepers only from this specific site and accepts only the application of beekeepers of this area. According to the general manager of the Wonchi beekeepers association, beekeepers cannot be a member of the association from other geographies.

Absence of interest

Out of the total interviewed beekeepers, 5.6% of the non members of beekeepers association stated that lack of interest and awareness is the main reason for not being a member of the beekeepers association. The interviewed beekeepers stated that they have no interest and awareness regarding the benefit of association because they did not develop positive attitude towards the benefit of the association. This is due to lack of education, training and communication with other beekeepers and management staff of the association.

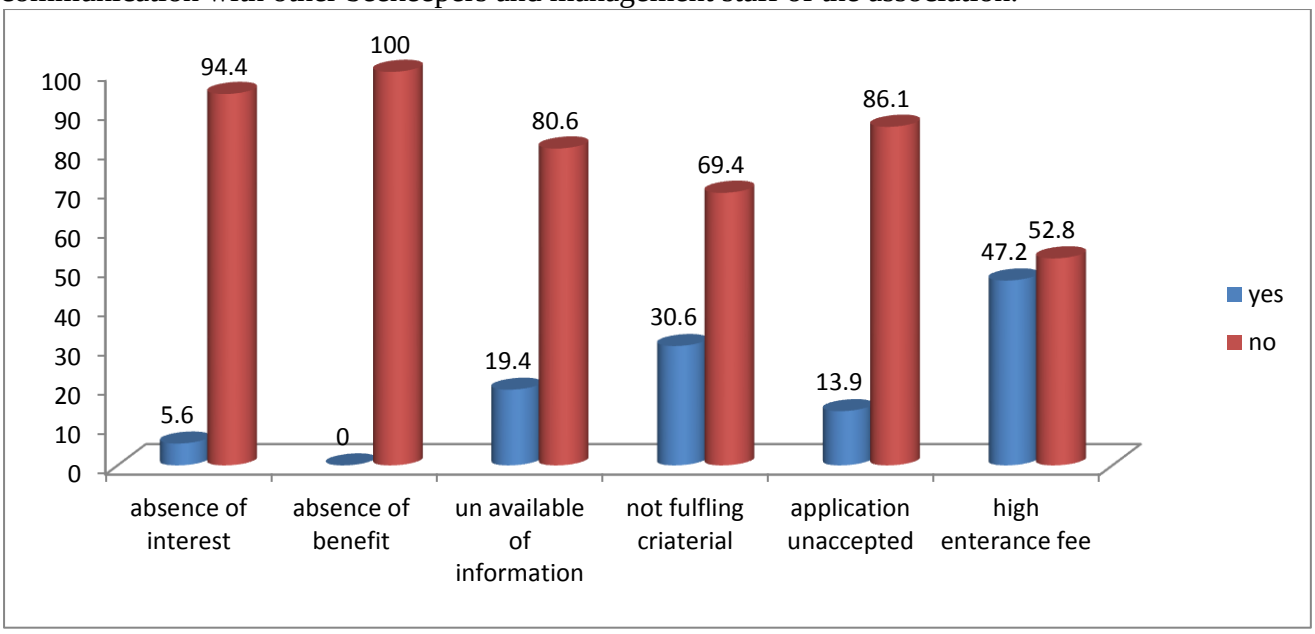

Figure 2: Factors affecting beekeepers for not being a member of the beekeepers association in wonchi district

Evaluation of the performance of Wonchi beekeepers association

To evaluate the performance of Wonchi beekeepers association spider web model was applied. Different indicators such as membership base, product, services, staff capacity, financial management, long term perspective, sales and relationships for producer association were used to score which parts of the association are performing well and where the gaps are there. The result of performance evaluation of the association is indicated in following figure.

	Organization:	*Wonchi Beekeepers association*		
		Max	Score	%
Production	Membership Base	15	8.50	57%
	The Product	30	19	63%
	The Services	15	6	40%
Internal Organization	Staff Capacity	25	15	60%
	Financial Management	35	23,75	68%
	Long Term Perspective	15	7	47%
Market	Sales	25	16	64%
	Relationships	25	13	52%
	Total	185	99,75	54%

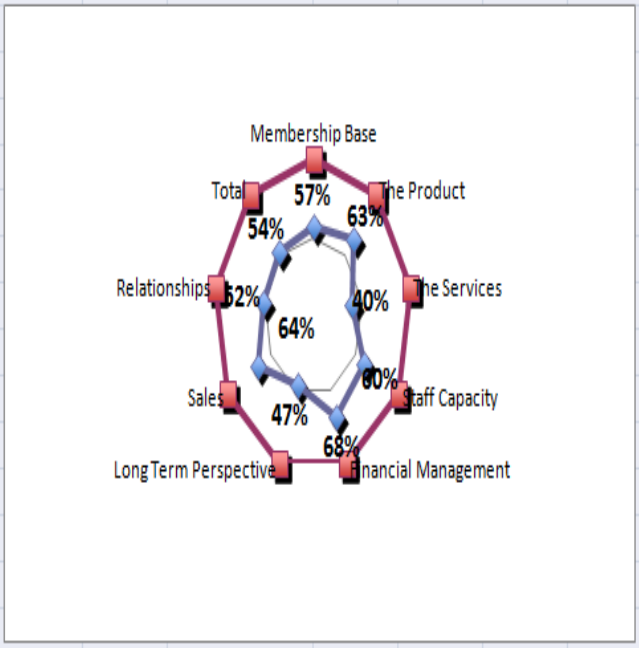

Figure 3: Evaluation of the Performance of Wonchi beekeepers association.

Membership base

There are about 100 potential beekeepers from lake Wonchi base memberships who have fulfilled the criteria of organic honey production. But the numbers of beekeepers that joined to Wonchi beekeepers association were only 40 beekeepers with the proportion of 38 men and 2 females. Out of the total members, the numbers of active members who actively participate and well perform the association works were 20 and the remaining 20 were passive members who are not actively engaged in association works. According to the general manager of Wonchi beekeepers association, the members of the association will get their share payment according to their work performance i.e less performing members will get less payment and more performing members will get more amount of payment. According to the interviewed beekeepers, this is always creating conflicts among the members and the association staff members.

Products

The amount of honey yield per hive was improved because the association is giving different input supply such as modern bee hive with accessories and technical support such as training and advice to the farmers. The average price paid to the members is also increased. The association general manager explained during the interview, even though the average honey yield per hive of the members of the association improved, the amount of honey yield is still low compared to the potential of the area, due to different factors including high cost of improved bee technologies such as modern bee hives, problems of pests and predators and application of agrochemicals. Beekeeping activities have different products such as honey, beeswax, propolis, pollen, bee brood, bee venom and royal jelly that can diversify the income of smallholder farmers but the association involved only in honey and beeswax production and marketing.

Services

Wonchi beekeepers association is providing different services to its members. These services include input supply such as modern bee hives with accessories, refined beeswax, training on bee management practices, honey production, post harvest handling, honey and beeswax processing and trading. Even though Wonchi beekeepers association provide different services to the beekeepers, the services of the association are biased approach and based on kinship relations because all members of the association are not getting similar services and benefit. Some of the interviewed members of the beekeepers association stated that, the one who can get better services and benefit from the association is the one who have close relationship with the management staff and near to the association center compare with the one who have no close relationship and who live in remote area or far from the association center. Thus, most of members of the association were disappointed to the services of association and they scored the services of the association as bad.

Staff capacity

The association has nine workers who are currently working at association center. Most of the association management staffs did not get long term and short term training to build their capacities to serve the members of association effectively. As a result of limited training and low skills of the management staff, there is a poor intra and inter coordination and management in the association.

Financial management

The association is well managed and utilizes its own financial resources for its business activity. According to the general manager of the beekeepers association, the association has good ability to forecast the organizations futures monetary needs and to allocate for the use of resources through planning, accountability and the use of financial system. Also the association access to local bank or financial institutions to get credit during the financial shortage for its business activities. The association is audited once a year at the end of year by external auditors but the audit result is not announced to the members of the association. Most of the members of the association are not being informed about the progress and financial status of their association.

Long term perspective

The association has no written declaration of mission and vision to define the fundamental purpose of the association and description of the long term achievement. This has negative impact on the association to achieve its objective because of the absence of a strategic plan.

Sales

Small scale farmers generally have interests in organizing themselves to get market access and better selling prices. In the developing countries, agriculture is dominated by small scale farmers which characterized by spread in the remote areas and poor infrastructure and this in turn affect income of farmers. The remoteness of the area on the one hand and lack of organized market system on the other often results in low producer price (Nuru et al., 2006). The association offers different market services such as provision of market information, link beekeepers to potential buyers, market promotion to national and international market

through exhibition and festival. Starting from 2007, the volume of honey sold and the price received was increased. The share payment of members is also increasing from time to time.

Table 1: Volume of honey and beeswax sold and the revenue generated in different years

Years	Volume of honey sold in (kg)	Revenue generated in (Birr)	Volume of bees wax sold in (kg)	Revenue generated in (Birr)
2007	500	30,000	-	-
2008	750	45,000	-	-
2009	1000	75,000	-	-
2010	1500	120,000	100	10,000
2011	2500	200,000	250	30,000
2012	3000	300,000	500	60,000

Relationship

Farmer member form producers association to obtain the required service and improve their farm's income rather than to realize a high return on their investments. However, there is no proper attention to members' relations and loyalty through communication with members, educating and motivating them. As a result, the members of the association become disappointed and deteriorated and the association future condition may be endangered.

The association has relationship with different honey value chain stakeholders such as the district livestock resource, development and health office, district cooperative development office, slow food foundation, research center, honey processor companies and honey retailers. But the level of collaboration with these partners is not sustainable and sufficient enough in solving problems of local beekeepers associated with low production and productivity, quality and market access.

Table 4: **SWOT analysis of Wonchi beekeepers' association**

Strengths	• The association has its own brand name. • Create strong market linkage for beekeepers products. • The association depends on its own financial resource. • Export bee products to foreign market such as Italy. • Involvements in honey production and processing activities. • 'Produce and marketing good quality honey.
Weaknesses	• Limited staff skills in management. • Less accountability and transparency from the association to inform its members on the selling price of honey and the financial status of the association. • Low members' participation in the association. • Low commitment from the association members to deliver all the produced honey to the association. • Lack of laboratory equipments at the association center for honey quality control.
Opportunities	• Rise of honey price annually at national and international markets. • Availability of tourists in the area who buy honey. • Availability of government policy which help beekeepers association to improve its position in honey value chain. • Acceptance and better perception organic local honey by tourists. • Presence of huge numbers of traditional bee hives in the area. • High demand of honey by tourists, local consumers and traders. • Proximity of the area to big city such as Addis Ababa and big towns such as Woliso

	and Ambo.
Threats	• Spread of Deforestation in the area. • Extensive use of agrochemicals in the district. • Presence of pests and predators that attack bee colonies in the area. • High competition for local honey from local market and local honey consumers. • Increasing the cost of input such as modern bee equipments and accessories.

Services of Wonchi beekeepers association

According to the general manager of Wonchi beekeepers association, the association offers different services to its members and local beekeepers. These are:

Input supply and technical services

Wonchi beekeepers association gave training to beekeepers on improved beekeeping management such as honey bee colony transferring, seasonal management, bee protection, honey harvesting and processing, post harvest management, packing and organizing experience sharing with other beekeepers and arranging visits to other similar producers . The Wonchi beekeepers association also supplied beekeeping input such as modern bee hives, honey extractor and wax on credit for resource poor farmers.

The association is involved in different beekeeping activities such as honey producing, assembling, processing, packing& labeling, marketing the processed and bottled honey and distributed to retailers live in Addis Ababa city and Woliso town. The association is also started to process beeswax and export to foreign markets such as Italy.

Market services

Wonchi beekeepers association is providing different market services such as provision of market information, link beekeepers to potential buyers, promotion of local honey to national and international markets, marketing the processed and bottled honey and distributing it to retailers in Addis Ababa and Woliso town. Bargaining association enhances the economic benefit for small scale producer by horizontal integration. i.e., collectively and selling the members' produce (Bijman & Wolli, 2008). Some bargaining associations also engage in processing or retailing but do not take ownership of the final product (Bijman, 2002). The association is also started to process and export beeswax to foreign markets such as Italy. As a result of low members participation and side selling of honey by the members, the association works under its capacity. From the total interviewed beekeepers 11.1% of members of the beekeepers association were selling their honey directly to local markets and tourists because the average purchasing price of honey per kg at association center is less than the average of purchasing price of local market and tourists.

DISCUSSION

Since beekeeping play significant role in improving household income and livelihood of rural community, it is clear that improving efficiency of honey production and marketing system is important. Organizing small scale farmers in the form of producers association is one of the options in this regard. This study identified different factors that hinder beekeepers of being a member of beekeepers association in Wonchi district. Generally, high entrance fee, not fulfill the criteria of membership, lack of adequate information, unaccepted application and absence of interest are the main factors that influence beekeepers not being a member of beekeepers'

association. This report agrees with the report of Woldegerbrial (2010) who reported that availability of information technologies, awareness of the rural people on the importance of cooperative and initial entrance fee highly influence new entrants for being a member of the cooperative in Tigray region of Ethiopia. Bilgic et al. (2006) also indicated that less membership willingness of farmers to wards of a cooperative role, high communication level with cooperative and higher interaction with personnel or manager of cooperative, membership criteria and entrance fee negatively influence potential entrants in being members of cooperatives in South Eastern Antolion of Turkey.

Most of the interviewed farmers in the study area (62%) responded that honey yield is decreasing over the years due to shortage of bee forage, threat of agrochemical, pests and predators and lack of improved bee hives. This report agrees with the report of Tessega (2009) indicated that honey bee products production was in a decreasing trend due to shortage of bee forage, problem of agrochemical, pests and predators and poor management in Bure district of Amhara region. Most of the respondents (83.3%) replied that honey is harvested once per year at end of rainy season between October and December. This report disagrees with the report of Tesfaye K and Tesfaye L (2007) mention that honey is harvested twice in mid rift valley Oromia of Ethiopia.

CONCLUSIONS

Factors prevent beekeepers from being members of association in Wonchi area include high entrance fee, lack of adequate information, absence of interest, not fulfilling membership criteria and unaccepted application. This in turn affects the volume of honey supply to honey processing company. The study revealed that people in most productive age are actively engaged in honey production in the study area with a moderate experience in beekeeping. The mean yield obtained from traditional and transitional hives of the two groups were statistically significant at ($p < 0.05$). The mean yields obtained from modern hive per harvesting year of the two groups were statistically significant at ($p < 0.01$). The results of this study also revealed that the trend of honey yield in the study area is decreasing annually due to deforestation, pests and predators, lack of improved bee hives and agrochemical poising. Most of the beekeepers in the study area have been using traditional bee hives that result in low production and quality. The mean yield obtained from modern and traditional hives of members of association were (14.67 ± 2.420 and 11.44 ± 1.106 kg) respectively. Whereas, the mean yield obtained from modern and traditional hives of non members of association was (9.24 ± 0.073 and 8.22 ± 0.083 kg) respectively. Transaction costs and transportation costs negatively affecting non members of beekeepers association when compared to members of beekeepers association in the study area because of their product is characterized by low volume, quality, and remoteness area.

From the field study conducted, it was also concluded that honey value chain in the study area consists of formal and informal honey marketing channels. Generally the study district has high potential and well known in honey production with the possibility of expanding trend of honey production.

RECOMMENDATIONS

(1) To strength its position in honey value chain and increase members' participation and then ensures sustainable food security through income generation, reduction of entrance fee for the new entrants.

(2) The regional government should expand telecommunication and roads to enhance development in the district
(3) Awareness creation intensive training, experience sharing, public meeting and work shop should be organized for the district beekeepers.
(4) The association should give member-oriented services to attract, encourage, motivate and satisfy all its members to reflect its commitment to members which is important for the success of the association.
(5) Accessibility to extension services was found to be weak in the district. There is a strong need for extension services in the district with respect to beekeeping activity.
(6) The audited result needs to be announced officially to the members of association in order to build trust and transparency between the members and their association.

ACKNOWLEDGEMENT

The study thanks Van Hall Larenstein of the University of Applied Sciences for providing research grant. It extend thanks to Wonchi district livestock resource, development and health, district cooperative development offices for their cooperation during data collection and to beekeepers in the study area for willing to be interviewed and giving us all valuable required information.

REFERENCES

Ayalew, K. (1990).The honey bees (Apis mellifera) of Ethiopia. Amorphometric study. M.Sc. thesis, Agricultural University of Norway, Norway

Bijman, W.J.J., 2002. Essays on organization co-cooperatives: Government structure in fruit and vegetable chains. ERID Ph.D. Series research in management 15.Erasmus University Rotterdam.

Bijman J, & Wollni, M. (2008). Producer organizations and vertical coordination: an economic organization perspective. Paper presented at the international conference on cooperative studies ((ICCS), October 7-9, 2008.Koln Germany.

Bilgic, A. Karli, B and Celik, Y. (2006). Factors affecting farmers' decision to enter agricultural cooperative using Random Utility Model in the South Eastern Antolion Region of Turkey. Journal of Agricultural and Rural Development in Tropics and sub Tropics vol.107, No.2.2006, pages115-127

Karunakaran, R., Brehanu, B. and Ahmedin, S. (2013).Determinates of cooperative members participation in input and output marketing by Multi-purpose Cooperatives-An Empirical Analysis in Tigray region, Ethiopia. Malaysian Journal of co-operative management, vol 7

Melaku, G., Shifa, B., Azage, T., Negatu, A. and Lulseged, B. (2008).Approaches, methods and process for innovative Apiculture Development: Experiences from Adaá Liben woreda Oromia Regional State, Ethiopia, International Livestock Research Institute, Addis Ababa, Ethiopia.

Ministry of Agriculture and Rural Development (MOARD), Government of Ethiopia, December 2008.Addis Ababa, Ethiopia.

Nuru, A. (2007). Atlas of Pollen Grains of Major Honey Flora of Ethiopia, Holeta Bee Research Center. Holeta, Ethiopia

Nuru, A., Admasu, A. and Dereje, W. (2001).Pollen spectrum of Honey Bee floral Calendar of west Shoa. Third National Annual Conference of the Ethiopian Beekeepers Association, Addis Ababa

Nuru Adgaba (1999). Quality state of grading Ethiopian honey: Proceedings of the First

National Conference of the Ethiopian Beekeepers Association, Addis Ababa, Ethiopia

Tessega, B. (2009). Honey Production and Marketing Systems, Constraints and Opportunities in Burie district of Amhara region, Ethiopia M.Sc. Thesis, Bahir Dar University

Tesfaye, K. and Tesfaye, L. (2007). Study of honey production system in Adami Tulu Jido Kombolcha district in mid rift valley of Ethiopia

Wilson R. T. (2006). Current status and possibilities for improvement of Traditional Apiculture in sub-Saharan Africa. Livestock Research for Rural Development. Vol 18, No. 111. Bartridge house, Umberleigh, Uk

Wonchi Beekeepers' Association (2013).Unpublished data, Wonchi Ethiopia

Woldegerbrial, Z. (2010). Why some rural people become members of agricultural cooperative while others do not. Journal of Development and Agricultural Economics vol.2 (4), pp.138-144, April 2010, ISSN 2006-9774.