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Constraints of Honey Production and Marketing in Ethiopia: A Review

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ABSTRACT

Ethiopia has huge potential for beekeeping production and 1st in honey production in Africa because of its endowment with diversity in climate and vegetation resources offering potentially favorable conditions for beekeeping. It is important for sources of food and beverages, medication, income generation, creating employment opportunities, environmental balance through pollination. Even though it has a higher contribution, the sector is yet not potentially utilized due to various constraints. Therefore the objectives of this paper are to review the production constraints of honey in Ethiopia and to review the marketing constraints of honey in Ethiopia. Pests, disease and predators; weather problem; Shortage of bee forage; Absconding; shortage of trained manpower; shortage of equipment; poor management practices; chemicals; weak research and extension; poor infrastructures and *etc*. are constraints of honey production in Ethiopia. While linkages problem; lack of market center; lack of market information; price fluctuation; low awareness of post-harvest handling; lack of technology; poor market infrastructure, lack basic business concepts and *etc*. are constraints honey marketing in Ethiopia. To overcome such constraints:- Adopting effective honeybee pests, disease and predators controlling methods; Introducing and expanding of full package improved beekeeping technologies with adequate practical skill; strengthen full package extension services; Support farmers for beekeeping business through credit availability, improving the barging power of beekeepers, strengthen linkage among different concerned institutions, cooperative formation, input supply, market facilitation and infrastructures as a whole; giving attention on research and human resources development; Expanding coverage of flowering plants especially economically important ones like horticultural crops and reducing the impact of agrochemicals and others are suggested recommendations.

Key words: Constraints, Honey, Marketing, Production.

In Ethiopia beekeeping subsector contributes to the incomes of households and the economy of the nation. The direct contribution of bee keeping includes honey, beeswax, queen and bee colonies and other products such as pollen, royal jelly, bee venom and propolis in cosmetics and medicine. It also provides an employment opportunity and source income for subsistence smallholder farmer's mainly the small land holders and landless (Ajabush, 2018). Honey is used as a sweeting agent in different food product (Naik *et al.,* 2017). Ethiopia has a potential in beekeeping as the climate allows growing of different vegetation and crops which are a good source of nectar and pollen for honeybees. Large and diverse botanical resources combined with suitable climatic conditions make it conducive for the beekeeping business (Workneh and Puskur, 2011).

According to Teklu (2017) beekeeping which is a forest and horti-agriculture based industry can play an important role in livelihoods of rural people, as it increases economy without changing environmental balance. It is a source of off-farm income to farmers. It provides not only direct job opportunities, cash income and food in the rural areas, but also assists the increased agricultural production of various crops through pollination effect of honey bees. As very little space is needed, beekeeping is ideal for people who have no land, little space and money. The net return from a well-managed beekeeping is generally thought to be significantly large.

According to CSA (2018) a total of about 6.52 million hives is estimated to be found in the rural sedentary areas of the country. From this total hives, the greater part (96.98 percent) is reported to be traditional. The estimate of total honey production is about 66.22 million kilograms of which the greater portion is harvested from traditional hives. Honey was harvested on average 1.59, 1.63 and 1.69 times from traditional, intermediate and modern hives, respectively. According to African beekeeping story (2018), Ethiopia is the largest producer of honey in Africa and produces approximately 45,300 tons annually.

The role of beekeeping in providing nutritional, economic and ecological security to rural communities at

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the household level and as an additional income generating activity is high. Even if it has larger contribution to livelihood of people, the sector is yet not potentially utilized due to various constraints. Therefore, the objectives of this paper are to review production constraints of honey in Ethiopia and to review marketing constraints of honey in Ethiopia.

METHODOLOGY

This paper is reviewed by referring different studies, published and unpublished documents, guide books, international journals and proceedings.

Production constraints

Pests, disease and predators

According to Welay and Tekleberhan (2017); Adeday *et al.* (2012); Debassa and Belay (2015); Etenesh (2016) there are different pests and predators which affect honey bee like ant, wax moth, birds, spiders and lizards. Those pests and predators ether directly eat bee colonies or eat their food (honey) and indirectly affect their reproduction that leads a reduction in bee population. The existence of pests and predators are nuisances to the honeybees and Beekeepers. Pests and predators cause devastating damage on honeybee colonies with in short period of time and even overnight. Kerealem *et al* (2009) the major category of diseases which cause economic loss comprises amoeba, nosema and chalk brood. The existence of honeybees' disease and pests affect the honeybees' life, which leads them to absconding (Gidey *et al.*, 2012). Diseases, predators and pests are the main constraints of beekeeping (Segni, 2017).

Bad weather condition

Drought is a major limiting factor to honeybee production, particularly during the long dry season. Most of the honey plants flower and provide ample nectar and pollen sources after the main rainy season (Nuru, 2002). According to Edessa (2005) Drought and deforestation of natural vegetation for various purposes affect beekeeping practice in different parts of the country. Drought or water scarcity is natural factor that leads to reduction or migration of bee colony that finally reduce honey production.

Shortage of bee forage

Shortage of bee forage due to population pressure, lack of land use policy and the high demand for farmlands put pressures on mountainous areas to be used for crop production and livestock grazing. These create deforestation, soil erosion and irreversible ecological degradation. Moreover, burning of undergrowth and destroying of forestland for expansion of farmland could trigger a reduction of honey producing floras and foraging areas. The elimination of good nectar and pollen producing tree species in many areas makes it difficult to maintain bee colonies without feeding (Kerealem, 2005: Gidey and Kebron, 2010).

Shortage of trained manpower and lack of knowledge

According to Mengistu (2010) lack of skilled human powers (apicultural extension staffs), absence of national training center and lack of standard training materials are constraints of beekeeping in Ethiopia. Edessa (2005) lack of skilled manpower and training institutions affect beekeeping. According to Birhanu (2016) beekeepers have limited knowledge of beekeeping practice due to shortage of formal and informal training from different sources.

Shortage of equipment

According to Welay and Tekleberhan (2017) lack of different equipment for beekeeping is critical determinant factors that affect the development of the sector. Majority of farmers use traditional behaves which have the following disadvantage according to Gallmann and Thomas (2012) no possibility to inspect comb for brood diseases, complete darkness at night, no possibility to split the colony for artificial colony reproduction, no selection for honey yield and behavior, no possibility to feed a colony during times of food shortage at the time of bee management and high chance that the colony (queen) is killed during harvesting, very difficult to judge the maturity / ripeness of honey before harvesting, brood and honey combs are harvested together because separation of the two is laborious and difficult at the time of honey harvesting. Chimdessa *et al* (2020) Lack of equipment's, materials and storage facilities are the major constraints of beekeeping practices which has direct influence on honey production in Ethiopia.

Segni (2017) high cost of modern hives and accessories; Edessa (2005) high price of improved beekeeping technologies are factors that affect beekeeping in Ethiopia. Tekeba and Yeshitela (2018) limited regulatory functions including testing and certifying laboratories.

Poor management practices

This production system is characterized by a very low honey production, where under Ethiopian farmers' management condition; the average amount of crude honey produced from traditional beehive is estimated to be on average only about of 8 to 15 kg honey per harvest/beehive/year (Beyene and David, 2007). Beekeepers who do have modern beehives do not have the skills or knowledge needed to properly manage them and training is not readily available. Therefore, the beekeepers tend to rely on ineffective extractive harvesting methods and inappropriate tools for this type of hive. Additionally, they usually do not provide additional feed (water and sugar syrup or flour) during droughts and have little knowledge about prevailing honey-quality requirements in export markets (Mikhail *et al.,* 2013).

Different chemicals (pesticides, insecticides and herbicides)

Pesticides are the chemicals that are most widely used to control pests in crop production, but it disturbs the natural balance between the bee and their natural hosts (Amsalu,

2012). The use of chemicals and pesticides for crop pests, weeds, Tsetse fly, mosquitoes and household pests control brings in to focus the real possibility of damaging the delicate equilibrium in the colony, as well as the contamination of hive products. From the various kinds of chemicals only insecticides and herbicides are now major problems to the beekeepers. The chemicals used for crop protection are the main pesticides that kill the bees. (Kerealem *et al*., 2009).

Weak research, extension and poor infrastructures

Poor extension systems (absence of coordination between research, extension and farmers), lack of credit service and shortage of records and up-to-date information, shortage of reading materials regarding to beekeeping and lack of research stations to address the problems related to apiculture (Kerealem *et al*., 2009). According to Tessega (2009), the potentiality of apiculture could be backed up by research and the beekeepers' indigenous knowledge which should be assessed. Tekeba and Yeshitela (2018) Limited research and development capacity to promote honey products diversification is the main factor that affect production of honey and its products.

Lack of credit access

Lack of financial resources (such as access to loans) for beekeepers to obtain modern beehives and other tools is necessary to increase honey production. Beekeepers have little access to financial products that would allow them to switch from traditional beehives to improved versions. Moving to transitional and modern beehives requires an initial investment of capital that most beekeepers do not have, so they continue to produce honey using traditional methods (Mikhail *et al.,* 2013). Mengistu (2010) High cost of beekeeping materials, absence of medium and long term credit institutions in rural areas and technological problems as a major constraints.

Absconding and migration

Honey bee migrate from their hive especially from traditional one due to lack of forage, due to pests and predators, at the time of harvesting, problems of sanitation, uncomfortable weather condition, drought and others. This may as negative impact on honey production (Assemu *et al.,* 2013).

Marketing constraints

Beekeepers, honey and beeswax collectors, retailers, tej brewers, processors and exporters are identified to be the key actors in the value chain and/or marketing system of the honey sub-sector. These channels are complex and found to be interconnected which is explaining the absence of organized marketing channels/systems and lack of formal linkages among the actors in Ethiopia. Lack of market center at village and district town, lack of market information, poor quality of storage and transportation material, lack of appropriate hive products' marketing place, buyer dependent price settings, lack or inappropriate functioning of marketing cooperatives, low price and price fluctuation during harvesting period and less awareness on post-harvest handling of their produce are the main factors affecting honey marketing (Etenesh, 2016). According to Oxfam (2011) factors limit potential honey production are lack of experience in accessing international markets, problems of maintaining quality, limited exploitation of other bee products such as propolis and venom due to lack of technology and skills, financing and policy constraints for developing different brands and market promotion strategies, problems of continuous supply due to various production constraints.

Quality of honey is the main determinant for marketing (the higher the quality the higher the price and the vice versa is true) According to Mikhail *et al* (2013) backward technology for honey production, which includes traditional beehives and results in low quantity and poor quality of honey produced which has negative impact on honey marketing. In addition to this poor transportation infrastructure; weak knowledge of proper storage; problems with packaging, especially at the processors' level; weak access to profitable export markets due to low productivity; limited knowledge of export-market requirements; and lack of or weak connections with processors.

Market for honey in Ethiopia is generally not well developed, mainly due to a limited number of buyers relative to producers, poor market infrastructure and information, lack basic business concepts (do not have sense of competition, poor in client handling, weak in information gathering, *etc*.). They also lacked facilities like container and processing materials (Sebsib and Yibrah, 2018). According to Birhanu (2016) problem of market access and lack of linkage from different institutions which create information gap are factors affecting honey marketing. According to Tezera (2013) lack of roads for transportation of honey, lack of modern measuring devices like kilo and color of honey" are the major constraints that affect honey marketing. Legese (2013) major challenges of honey marketing are the discouraging price of honey, quality problem and lack of market information.

Price variations which based on honey quality mainly on the color of honey, tastes, season (time) and distance from market point, absence of market information, lack of transportation, low price and price fluctuation at harvesting time, brokers, lack of cooperatives, distance from market, were identified as the main bee products market problems (Bekele *et al*., 2017). According to Tekeba and Yeshitela (2018) the common marketing problem of honey marketing in Ethiopia are lack of mandatory standards resulting in adulteration and other fraud, limited products for the market, poor market infrastructure, absence of branding, illegal export of honey across the borders and Poor linkage between producers and buyer.

According to Negash and Juergen (2018) traditional smallholder level production with very low productivity and problematic supply chain; quality issues, including adulteration; lack of access to credit; constrained input supply chain and input quality issues are the main factors

affecting honey marketing in Ethiopia. Gemechis (2015) domestic honey market lacks proper structure and legality; smuggling that pushes the legal actors out of market and adulteration of honey has been a frustrating factor for both the producers and legal buyers and sellers are some of the factors that affect honey marketing in Ethiopia. Askale *et al*. (2017). absence of organized market channels lack of adequate beekeeping trainings and lack of information have made Ethiopian honey uncompetitive in the international market.

CONCLUSION AND RECOMMENDATIONS

The major constraints that affect honey production in Ethiopia are lack of beekeeping knowledge, shortage of trained manpower, shortage of beekeeping equipment, pests, diseases and predators, different chemicals applied for crop production, shortage of bee forage, Absconding and migration, lack of different infrastructures for production, inadequate research works to support development programs and others. While problem of linkages among concerned institutions; lack of market center; lack of market information; problem of quality; low bargaining power of producers; price fluctuation; low awareness of processing and handling; shortage of technology; poor market infrastructure, lack basic business concepts and others are constraints honey marketing in Ethiopia. To overcome those constraints the following recommendation will be forwarded:-

- ✓ Adopting effective honeybee pests, disease and predators controlling methods (Creating awareness on integrated pest management and biological diseases controls system for beekeepers).
- ✓ Introducing and expanding of full package improved beekeeping technologies with adequate practical skill (for improving pre- and post-harvest handling of honey).
- ✓ Giving different training for beekeepers, traders and other concerned bodies on modern beekeeping practice (strengthen full package extension services).
- ✓ Support farmers for beekeeping business through credit availability, improving the barging power of beekeepers, strengthen linkage among different concerned institutions, cooperative formation, input supply, market facilitation and infrastructures as a whole.
- ✓ Giving attention on research and human resources development on beekeeping production and honey marketing.
- ✓ Expanding coverage of flowering plant especially economically important ones like horticultural crops and reducing the impact of agro-chemicals.

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