

**Recognizing Farmers' Knowledge in Development Initiatives:
Indigenous Bee-keeping in Alaba Special Woreda, Southern
Ethiopia***

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Abstract

Importance of indigenous knowledge system has been acknowledged to bridge gap with the scientific knowledge and achieve sustainable development. The success in use of modern agricultural technology is also dependent on extent of recognizing indigenous knowledge system. Although there was development efforts to introduce modern bee-keeping practice in Southern part of Ethiopia, Alaba Special District, the role and linkage of indigenous bee-keeping has not been examined with modern bee-keeping.

This paper documents history of bee-keeping, the social, medicinal and economic value of honey in Alaba Special District (Woreda). It

examines features of indigenous bee-keeping practice and its link with modern bee-keeping development in the study area.

The study is based on results from group discussion, community ranking and key informants, community validation and household interview. Findings show that knowledge of indigenous bee-keeping in Alaba originated from adjacent woreda and was adopted first in Besheno and surrounding area. The indigenous feature and value of beekeeping in Alaba reflects the importance of apiculture, its cultural base and role in economic development. Past introduction of modern bee-keeping has not taken in to account the significance of indigenous knowledge systems and the study recommends its integration with modern bee-keeping development.

Key words: Alaba; Bee-keeping; Ethiopia; Indigenous Knowledge.

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1. INTRODUCTION

Indigenous knowledge is gaining more and more attention and its importance for sustainable development is well recognized (Warren and Rajasekaran 1993, 8; Kolawole 2001, 4; Samal *et al* 2010, 140). In various places in the world, scientists and indigenous people are collaborating to build bridges between modern science and indigenous knowledge, among others, to improve ecological management of a particular region (Reijntjes 2004, 41). Indigenous knowledge system has played vital role in bee-keeping development for generations in Southern part of Ethiopia, Alaba special district, and it is worth to examine the practices and its feature so that current development effort can be sustainable. Policy makers and agricultural development planners are beginning to recognize the need to understand indigenous knowledge systems and have shown renewed interest in this type of knowledge (Warren and Rajasekaran 1993, 8).

In a review of bee-keeping in Ethiopia Girma Deffar (1998, 2) indicates that there is an ancient tradition for beekeeping in the country and points

out that there is no nationality in Ethiopia which does not have beekeepers as a major economic activity. In Southern part of Ethiopia, Alaba special woreda, indigenous bee-keepers have long established practice as documented in this paper.

The word indigenous knowledge has many meanings and distinction is made between local, traditional and indigenous knowledge (FAO 2005, 7). The term local or indigenous knowledge (IK) is used to distinguish the knowledge developed by a given community from international knowledge systems or scientific knowledge (Kolawole 2001, 4; Ajibade 2003, 99-100). In this paper, the term indigenous or local knowledge is used synonymously. Indigenous knowledge is unique knowledge that people in a given community (geographic area) have developed over time, and continue to develop (Samal *et al* 2010, 140; FAO 2005, 7-8). It is based on experience, often tested over centuries of use, adopted to local culture and environment, dynamic and changing (IIRR 1996, 20). As indicated by Ajibade (2003, 99) indigenous knowledge is an institutionalized knowledge that has been built up on and passed on from one generation to another and develops within a certain culture or ethnic

group and strives to meet subsistence goals in a particular ecological settings.

As reviewed by Kolawole (2001,4) farmers have quite a sophisticated knowledge of agriculture based on insights from several generation and he stress the need to documented and preserve the knowledge in situ and ex situ. The basis and starting point of rural development must be the people knowledge themselves (Kolawole 2001, 4). Many farmer's ideas which were in the past regarded as primitive or misguided are now being seen as appropriate and sophisticated (Chambers 1983, 5-8). Thus, success of development effort in apiculture in Alaba district (woreda) is dependent on extent of recognizing indigenous farmers' knowledge, documenting their knowledge and incorporating in development process. Studying indigenous knowledge is a pre-request to recognize indigenous knowledge systems in modern bee-keeping practices and to ensure its sustainability.

Indigenous peoples have experimentation and ways of research, of knowing, which allow the local knowledge to be innovated in the local

practices and systems (Reijntjes 2004, 42). Realizing the importance of this form of knowledge in development process leads to faster diffusion and better adoption of technology resulting in sustainable development. Recognizing indigenous knowledge means acknowledges locally developed solutions, developing based on existing culture, values, and beliefs and practices which otherwise could be barrier in development efforts. Warren and Rajasekaran (1993, 8-10) reviews that indigenous knowledge is a valuable national resource that can facilitate communication among people from different backgrounds, ensure involvement of local community in development in cost-effective way while facilitating the transfer of technology, enhancing sustainability and capacity-building.

This paper document history of bee-keeping, value of indigenous apiculture, characterize indigenous practices. The paper also examines link between the modern and indigenous bee-keeping practice and provides recommendation for modern bee-keeping development partners in Alaba special district.

This paper has five major parts. It begins with an introduction which reviews available literature and states study objectives. In the second part, describes the study area while the third part describes the methodology. In the fourth part, results and discussion, provides an overview of bee-keeping, history, indigenous and medical value of honey. The fourth part provides features of indigenous bee-keeping including classification systems. The fifth part provides conclusion and recommendation.

2. THE STUDY AREA

Alaba Special district (woreda) is located 310 Km South of Addis Ababa and 85 Km South West of Hawassa, the capital of South Nations Nationality and Peoples Regional State (SNNPRS). The district is located $7^{\circ} 17'$ N latitude and $38^{\circ} 06'$ E longitudes (IPMS 2005, 6) (Fig. 1). The district has 2 urban and 79 peasant associations (PAs). Alaba Kulito is the capital of the district. The total population of the district is

210,243 (49.7% are women). There are 6 ethnic groups and the dominant ethnic groups are Alaba and Gurage which comprise 81% and 10% respectively. The altitude of the district ranges from 1554 to 2149 m.a.s.l. while the topography is predominantly flat. Agro-ecologically, the district is described as Weyna Dega and cool sub-humid highlands (Tropical Climate I). Mean annual rainfall ranges from 857 to 1085 mm/yr with bimodal distribution pattern while annual mean temperature varies from 17⁰C to 20⁰C (IPMS 2005, 6). The district is suitable for production various crop and livestock commodities including honey. Among livestock priority commodities, apiculture ranks 4th next to poultry, shoat, and dairy. Bee-keeping is long been practiced traditionally in the study area except for recent intervention in modern bee-keeping. Two farming systems have been identified in the district as Teff-haricot bean-livestock and pepper-livestock farming systems. Although beekeeping can be practiced in all the PAs in the district, pepper-livestock farming systems with 36 PAs of the 79 PAs are known for having high potential for bee-keeping (IPMS 2005, 11).

- | | | | |
|----|--------------------|----|-------------------|
| NO | PA Name | NO | PA Name |
| 1 | BEA LIBERDIA | 39 | YATO DORANHO |
| 2 | ANSHOKRA BULTE | 40 | BITO OUBELA |
| 3 | KULEBI | 41 | DODA BAREHO |
| 4 | NEJJA | 42 | ALAJE GERHO |
| 5 | HABSONKA FURKANA | 43 | KIDDELE WEDISHA |
| 6 | MIRASE 1 GORFANCHO | 44 | ASHOKA |
| 7 | LAYONAW AERISHO | 45 | ASGRE |
| 8 | BEISIK GORFANCHO | 46 | ZONA HAWSHA |
| 9 | ZONA MEKALA | 47 | GEREME |
| 10 | GERREMA | 48 | LAYONAW LENDA |
| 11 | BEHAWO | 49 | TACHONAW LENDA |
| 12 | MUDA D'ANOKSIA | 50 | WANJANA WOLODIA |
| 13 | KUNCHUNA YAYE | 51 | AJAKA KIRU(Town) |
| 14 | GOFISA | 52 | HOLKODISA KURSE |
| 15 | POKEMNE TEFO | 53 | KALERO |
| 16 | KUPBE | 54 | ZONA CHOROKO |
| 17 | QUSA SHEPARD | 55 | ZONA HAWSHA |
| 18 | QURPUN BUCHO | 56 | ALUSA TONA |
| 19 | DESEBO | 57 | AYMELE |
| 20 | ZONA TEFO | 58 | BEKO CHOLOKSA |
| 21 | ZONA TEFO | 59 | CHERUSLA |
| 22 | HALASNA KONECHA | 60 | GEDESA |
| 23 | ANEDONIA KONECHA | 61 | MUDA MEYAPA |
| 24 | GE TO MENO | 62 | GUDUSA |
| 25 | KOBO CHOSARE | 63 | SHEKATANA WOLODIA |
| 26 | CHOSARE MENO | 64 | TACHONAW BEDEH |
| 27 | LEANA MENO | 65 | YANGO |
| 28 | LAYONAW TUKA | 66 | WELJADO YATU |
| 29 | HANREZO BUBESSA | 67 | SORGE DORODISA |
| 30 | ZONA TUKA | 68 | ZONA MEKALA |
| 31 | ZONA TUKA | 69 | LAYONAW AERISHO |
| 32 | TEFO TEFO CHURO | 70 | BURKO TIBAWO |
| 33 | LEANA CHOLOKSA | 71 | LAYONAW BESSANE |
| 34 | ALA HALLKO | 72 | ZONA CHOROKO |
| 35 | BESEBENO | 73 | AWATA |
| 36 | SIBSFA | 74 | ZONA CHOROKO |
| 37 | MILLIPO | 75 | FELWA |
| 38 | WOFETA PE TAN | | |

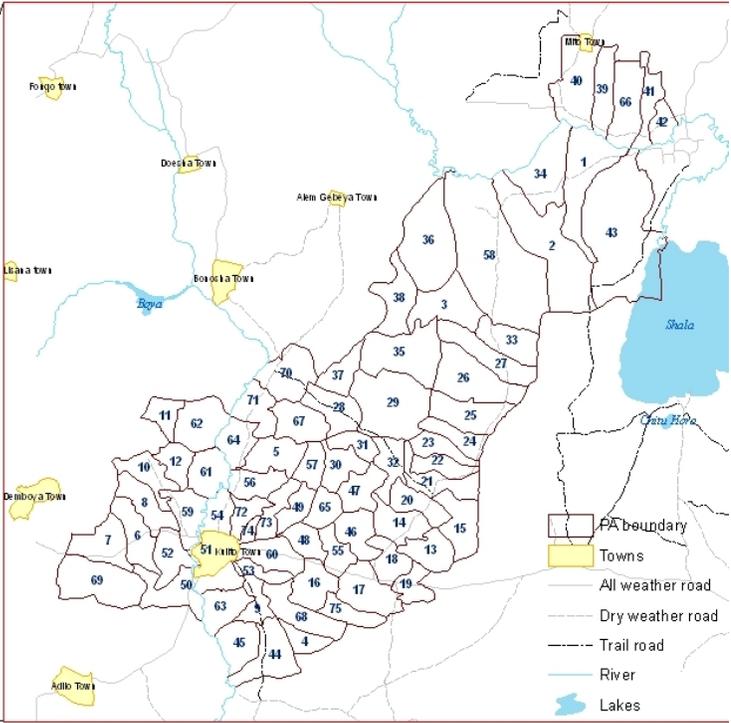


Figure-1-Location of the Study Area (Alaba Special District)

3. METHODOLOGY

Methods used for collection of indigenous bee-keeping knowledge in this study is based on procedures as described in Warren and

Rajasekaran (1993, 8-10), Ajibade (2003, 100-102) & IIRR (1996, 20-30). Group interview was conducted in five peasant association (PAs). Purposive PA selection was based on existing potential for beekeeping, existence of long aged bee-keepers and accessibility. The selected PAs are Chambulla, Holegeba kuke, Gedeba, Wanja and Galato PAs. Purposive sampling was used for household (HH) interview. HH selection was based on accessibility and presence of active traditional bee-keeper with long history. A total of 40 HHs (8 are female headed) were interviewed. Preference ranking was also used with group discussion. Respondents in group interview were also randomly selected from various villages and interviewee age varied from 35 to 90 years. A method of village-dialogue approach and indigenous knowledge information was also extracted from traditional folktales as described in Ajibade (2003, 102). Community data validation was done with Wanja, Gedeba and Galato Apiculture group farmers.

4. RESULTS AND DISCUSSION

OVERVIEW OF BEEKEEPING IN ALABA SPECIAL WOREDA

Honey is one of the priority commodities in Alaba Special woreda (IPMS 2005, 44). Woreda Office of agriculture and rural development (OoARD) is exerting effort to boost honey production by introducing modern bee-keeping practice. OoARD started distributing bee-hives in 2004. Until 2009, a total of 950 modern-beehives, 3 honey extractors and several bee-hive accessories were distributed for farmers in the area. Recent effort of the OoARD and Improving productivity and market success (IPMS) project has lead to establishment of first apiculture cooperative in 2006, identification of innovative bee-keepers and introduction of bee-forages in the woreda. According to IPMS (2005, 44-45) there are close to 10,000 bee-colonies in Alaba special woreda and over 10,000 traditional hives. It is believed that Besheno and its surrounding area (36 PAs) have high potential for bee-farm.

Virtually, beekeeping practice in the woreda is dominantly indigenous. Most farmers do not give due attention to apiculture and own a few hives in the homestead. A few farmers who have realized the benefit of indigenous apiculture own 15 to 35 beehives. These farmers who invest more in apiculture, make use of their own materials and undertake

experimentation are described as “Innovative apiculture farmers”. There is high economic and social importance of apiculture and existence of diverse and rich culture of farmers’ knowledge in beekeeping in Alaba Special woreda.

HISTORY OF BEEKEEPING IN ALABA SPECIAL WOREDA

Indigenous knowledge is defined as part of local knowledge which people in a given community have tested over centuries of use and adapted to local culture and environment (FAO 2005, 7; IIRR 1966, 15). Likewise, the present day practice of beekeeping in Alaba is believed to have come from adjacent woreda, Kembata. The first area which is believed to have adopted must have been highland “*Dega*” areas of Alaba. The areas include Besheno, Kobo and Teffo areas which are agro-ecologically described as area of better vegetation cover, mild climate, wet and have high bee colony. Farmers’ reasons of adopting bee-keeping lies on its little demand for labor and land, multiple use of honey including its incomes and medical value.

Although the exact time at which beekeeping practice started in Alaba is not known, it is believed that the practice started before several decades. A pioneer in beekeeping, in present day Alaba, is Dalalo (whose fathers' name is unknown). Dalalo was settler form Kembata and was known for hanging several traditional bee-hives.

VALUE OF HONEY IN ALABA

Indigenous knowledge is embedded in community practices, institutions, relationships and rituals (FAO 2005, 7). The importance of honey in developing relationship, establishing institutions and its significance in rituals is well reflected in value of honey for Alaba ethnic group. The social and medicinal values of honey in Alaba signify the role of apiculture in livelihood of the community (Table 1).

Table -1- Social Value of Honey in Alaba		
No	Social Events	Description of social event and honey use
1	Conflict resolution	When people quarrel, honey is given through <i>hagershimagile*</i> as compensation. Likewise, murderer provides honey through

Table -1- Social Value of Honey in Alaba

		<i>hagershimagile</i> to deceased family. In conflict resolution the <i>Hagershimagile</i> drips honey on bodies of who quarrel or both families to make the agreement binding once and for all.
2	Matrimony ceremony	Honey is provided to bride family by bridegroom to express wish for love based friendship in marriage. Honey is provided to bride family by <i>hagershimagile</i> as gift before wedding day on “Nika” (<i>yekelebet ken</i>) ring ceremony day. Honey is consumed by brides on wedding ceremony.
3	Religious, blessing & gift ceremony	Honey consumed during major festivals (Ed-alifetir & Ed – aliarefa) in Alaba. Elders in Alaba bless others by dripping honey up on one to be blessed. Honey is also given as a special gift for close relatives, locally respected, leaders and elders.

*are community representative and are elders with highest social value

among the community. Also called Badi BaliKi.

MEDICINAL VALUE OF HONEY IN ALABA

It is said that the word "medicine" derives from "mead" (honey wine). Honey and the products of bees have long been used as medicine. Countries in Asia and Eastern Europe have a wealth of traditional knowledge of apitherapy. Honey has antibiotic properties; it is highly acid and also contains enzymes that kills bacteria. Honey is good for healing wounds, skin treatment (Bradbear 2004, 3). The medicinal value of honey is a common knowledge among farmers in Alaba Woreda. All respondents have indicated that honey is used as medicine for the following diseases: Pneumonia “*yebird beshita*”, “eye disease or trachoma” “*yeayin beshita*”, Tuberculosis (T.B) “*yesanba beshita*” and leprosy “*kumtina*” in the woreda. Methods of using honey as medicine, however varies in the community depending on the types of diseases and user. For example, pneumonia is treated by using honey mixed with different spices (“*nech azmud*”, “*tikur azmud*” and onion “*shinkurt*”) and butter with varying proportion and application rate.

Indigenous knowledge information can also be extracted from traditional folktales as described in Ajibade (2003, 102). Indigenous knowledge is acquired and handed as lore from generation to generation in the form of stories, tales or proverbs. The proverbs associated with honey signify the social and economic value of honey in the study area (Table 2).

Table -2- Selected Proverbs Associated with Honey in Alaba Speical Woreda		
Alabigna	Amharic	English Translation and connotation
Afonteki melebu.	Afihin be mar.	<i>Keep your mouth with honey.</i> Im importance of using proverbs in speech and importance of silence than speaking.
Zizu gimi kelu.	Niboch tegnetew yiwuledu.	<i>Let bee-colony yield long in hive.</i> W expressing bee-colony to yield more stay long without absconding.
Melebu shuri lobe nobeit.	Mar lekelid aykerbim.	<i>Honey is not honored in joke.</i> Signifies high values of honey.
Melebu afema angeta afo mesu agurenosiba.	Mar yenekewun eji wode afi mewusedu aykerbim.	<i>A finger with honey ends up going to mouth.</i> Indicates sweetness of honey.
Menchi womu yosiga,	Le sew nigus endalew le	<i>As there is king to people so there is king</i>

Table -2- Selected Proverbs Associated with Honey in Alaba Speical Woreda		
Alabigna	Amharic	English Translation and connotation
ziziha womu yosi.	nibim nigus alew.	<i>bees.</i>
Menin lochakemo fitin shuleno	Nefsin yegedela be mar yicherisal	<i>He who kills soul, winds up things by Hon</i> Reflects role of honey in conflict resolution
Fitin lochakemo tibin shuleno.	Marin yesereka be afer yicherisal.	<i>He who steals honey, will end up in s</i> Connotes danger of stealing honey.

FEATURES OF INDGENIOUS BEE KEEPING IN ALABA

Grima Deffar (1998, 6) has reviewed that traditional hives in Ethiopia are made of bark, climber, cow dung, bamboo materials. In Alaba, indigenous materials which are used for construction of bee hives include bamboo leaves and cuttings, climbers, local grass and fiber form false banana "enset", rope and dung to enable hive maintain heat. Farmers have ranked construction materials according to their preference. Farmers ranked bamboo tree as best material because of its

durability, ease for construction (bends easily), water proof and capacity to attract bee colony. Materials like thatched grass and tree fibers or climbers were ranked least because of less durability and poor capacity to attract colony. There is little diversity in construction of indigenous bee-hives. The two major types of bee-hives are classified based on size of hive diameter as wide and narrow. The latter is preferred by bees because of its capacity to provide heat. As described by Kolawole (2001, 4) special features of indigenous technical knowledge (ITK) are having inherent features of construction material as described by local people. The above features of construction materials for bee-hives were given by respondents for providing multiple benefits like being cost-effective, user-friendly and being durable.

The existence of local planting of nectar-yielding vegetation or good honey plants near like Eucalyptus plantations, *Vernonia amygdalina*, *Salvia spp.* near hive colonies by farmers in Ethiopia (Girma Deffar 1998, 5). Farmers have commonly identified four major trees bee forage types. They have ranked according to their preference to hang traditional bee hives and as source of bee forage. The decreasing rank order of tree

bee forage includes '*Sholla*' Ficus tree, '*Wanza*' Cordia, '*Bisana*' Croton spp., and '*Girar*' Acacia. Farmers' description shows three good features of tree bee forages are longer tree height to protect from theft, wider tree branching and higher canopy density.

Deliberate feeding of bees in Alaba farmers is not common but 25% of the respondents (n=40) have indicated that they feed flour of pea, boiled pumpkin and provide solution of sugar in dry season when there is feed shortage. As part of indigenous bee feeding, farmers have responded that they avail water for their bees. This practice has been reported to be most useful during prolonged dry seasons, drought years to reduce colony absconding and increase hive productivity.

Most respondents (95 %, n= 40) replied that male and female within family share various activities in beekeeping. Mostly, honey harvesting, colony inspecting, apiary sanitation and honey marketing are concern of men than women. On the other hand, assisting men during honey harvesting, bee feeding in dry reason and to lesser extent honey marketing are also handled by women. On top of these, to get more

honey farmers in Alaba keep tree bee forages around the homestead and avoid cutting of these trees. Like wise, farmers' avail feed during drought season to prevent absconding and keep neatness of apiary site.

List of local bee forages indicated by respondents (Table 3).

Table -3- Indigenous Bee Forages Listed by Alaba farmers			
No	Amharic name	Alabigna	Common / English name
1	Mechi	Sheshe	Guizatia scabra (Weed)
2	Bokolo	Bokola	Maize , Zea mays
3	Girawa	Heba	Vernonia mycrocephala
4	Weyira	Wera	Olive tree
5	Bisana	Mesena	Croton macrusachys

6	Wanza	Wanja	Cordia Africana
7	Atse faris	Mechareka	Euphorbia(Weed)
8	Sensel	Gulbana	Justita schimperana
9	Duba	Deba kula	Pumpkin, Cucurbita maxima

Fumigation is traditional method used by farmers to attract bee colonies.

Various indigenous materials were used to attract bee colony by farmers in Alaba special woreda. Materials for fumigation include cow dung, bee wax, and ‘*hantezo*’ plant. Once hives are constructed from traditional materials, farmers smoke them using cow dung and ‘*hantezo*’ plant. Once the hives are fumigated, hive entrance is kept close for couple of hour before hanging on the trees.

To retain bee colonies and avoid absconding; farmers frequently spray water when bees show sign of absconding. Skilled farmers have reported that they arrest or kill newly born queen that initiate absconding of colony. Farmers use a queen retaining device locally constructed form maize or sorghum stack. The device is locally called as “*shirga*”.



Shirga "Indigenous queen Cage" Photo: by Shiferaw 2007

Absconding is usually observed at mid day usually in October. It is believed that absconding is exacerbated by lack of feed and unfavorable situation e.g invasion by predator. FAO (1990) describes that the success or failure of beekeeping with the common honeybee depends largely on the ability of the beekeeper to take suitable measures to control diseases and natural enemies of insects, birds and mammals affecting bees. Various indigenous bee predators' protection method exists in the area. *Sherarit* (Spider), *Enshilalit* (Lizard), *Gundan* (Ant) and *Yesem Etchi* (Wax moth) are protected by cleaning the site. Pests like ant is protected using ash and local repellent. A predator like *Shelemetimat* (Genet) is

protected using local trap. Indigenous technologies are developed by local community to solve a particular problem (Ajibade 2003, 100). There is little evidence showing linkage of indigenous bee-keeping technologies (used to protect predators, increase productivity, minimize absconding, manage queen and attract colonies) with modern beekeeping in the study area.

INDIGENOUS CLASSIFICATION

People have recognized throughout ages, species of bees belong to the genera *Apis* (honeybees), *Trigona* and *Melipona* (sting less bees) as sources of honey. The most widely used honeybees are *Apis mellifera*, the honeybees are indigenous to Africa (Bradbear 2004, 10). Like wise the scientific taxonomy, indigenous classification associated with beekeeping exist in the study area.

Honey is known in the study area as “*Melebu*”, “*Fita*” and “*Wodefa*”. There are four indigenous classes of honey recognized by respondents based on honey color and test. The classes are “*waju melebu*” white (attractive and sweetest of all), “*bullu melebu*” yellow (less attractive and

sweeter than white), “*bisha melebu*” red (less attractive than white and yellow), and “*gembella melebu*” black honey (least attractive in color and taste). Farmers categorize bees based on their color as black (less aggressive and productive) and red bee (more productive aggressive and stinging). FAO (2005, 9) describes common knowledge is held by all people, shared knowledge is by many and specialized knowledge is held by few people. In the study area, some farmers identify and describe queen bees and others bee types which is noted as specialized knowledge. In past however, little has been done to link indigenous classification and farmers’ specialized knowledge in previous training, demonstration and promotion of modern apiculture in the study area.

5. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

- History of apiculture in Alaba shows that the knowledge of apiculture diffused from adjacent woreda, Kembata, over several decades.
- The indigenous values of honey reflects role of apiculture and its significance in livelihood of Alaba people.

- Development of apiculture in agriculture sector as source of food and income could be successful because of its' cultural base, high socio-economic value of honey and less demand for land and labor in the study area.
- The wealth of bee-keeping indigenous knowledge in Alaba is reflected in existence and use of indigenous methods used for colony attraction, protecting coolly absconding and existence of special devices like “shriga”, farmers' indigenous classification of bees, honey, hives and bee-forages.
- There is poor linkage between modern bee-keeping development and indigenous bee-keeping in the study area. Better adoption of modern apiculture technologies and economic gain can be realized, if local knowledge is taken in to account at every stage of development process (from targeting of farmers up to technology adoption).

RECOMMENDATIONS

- Knowledge of indigenous bee-keeping is a pre-request for success in modern bee-keeping development. It is suggested that targeting indigenous bee-keepers in modern apiculture development

leads to better success than farmers without the knowledge which could be a key targeting criterion. Likewise, targeting for colony multiplication should focus at farmers with indigenous knowledge to identify queen bee, use and construct queen cage.

- To improve management of bee-ecology, it is recommended that bee forages production, promotion and adoption continue focusing both on indigenous and exotic species while promoting modern-hives in the district.
- Indigenous knowledge in bee-keeping in Alaba is so immense that focused and quantitative studies be conducted on indigenous technology, practices and their economic importance in development process.
- To increase recognition of indigenous bee-keeping and its linkage with current apiculture development (training, demonstration and visits, credit support) effort, it is suggested that knowledge on indigenous methods of colony attraction, increasing productivity, minimizing absconding, and bee-predator protection be shared among beekeepers and extension agents in the study area.

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