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Challenges and opportunities for market-oriented apiculture development: The case of Ada'a-Liben district, Ethiopia

Melaku Girma¹, Azage Tegegne^{2†}, Shifa Ballo¹, Negatu Alemayehu²

¹Sap-Tec, Beneficial Insects, P.O. Box 17319, Addis Ababa, Ethiopia; ²Improving Productivity and Market Success (IPMS) Project, International Livestock Research Institute (ILRI), P.O. Box 5689, Addis Ababa, Ethiopia

Introduction

Beekeeping has been practiced in Ethiopia for centuries and currently the country is a leader in Africa in terms of volume of honey and waxes produced and traded. However, the large majority of beekeepers in the country are still use traditional hives (MOARD, 2003). In Ethiopia, honey is almost exclusively used for local consumption, and to a very large extent (80%) for brewing of mead, locally called 'Tej'. Ethiopia produces between 24,600 and 43,000 tones of honey per year, and is one of the five biggest wax producers with an average annual export estimated at 3000 tones (EEPD, 2006). From traditional hives, an average of 5–6 kg of honey could be cropped/hive per year. However, in areas where improved technology has been introduced, yields of 15–20 kg/hive per year have been recorded. Low productivity and poor quality of bee products are the major economic impediments for beekeepers (NURU, 1999). The major constraints in Ethiopia are lack of beekeeping knowledge, shortage of trained manpower, shortage of beekeeping equipment, pests and predators and inadequate research and extension services to support apiculture development programmes (SOS–Sahel-Ethiopia, 2006). The Improving Productivity and Marketing Success (IPMS) of Ethiopian Farmers project has included beekeeping as one of the priority marketable commodities in a number of its Pilot Learning districts of which Ada'a-Liben district is one. The objectives of this development study were to develop approaches, methods and processes and improve the existing traditional apiculture production system in Ada'a-Liben district through the introduction of market-oriented beekeeping production.

Materials and Methods

The study was conducted from 2005 –2007 in Ada'a-Liben district in East Shoa Zone of Oromia Regional State. Systematic and step-wise approaches were employed to assess the existing situation and implement interventions. GIS was used to identify potential locations in the district. A survey was conducted on randomly selected beekeepers in Yerer and Zuquala watersheds to study the current status of beekeeping in the district. For the survey, primary and secondary data were collected. Information was obtained by interviewing farmers, district apiculture experts and development agents, Federal and Zonal governmental organizations (including the Ethiopian Institute of Agricultural Research (EIAR) and East Shoa Zone Cooperative Promotion Office).

[†] Corresponding author. Email: a.tegegne@cgiar.org

The main activities during the implementation process were identification of pilot intervention sites, capacity building, cooperative formation and establishment of institutional linkages. Pilot intervention site were selected based on the number of beehives owned, the amount of honey produced, availability of bee forage plants and interest of beekeepers to participate in the development program. Capacity building was provided through conducting educational visits, training, demonstration and constant technical back stopping. Interventions were made to improve apiary and hive sanitation, colony handling, harvesting, and handling of hive products. Improved hives (transitional hives, Kenyan top bar) were subsequently introduced to interested farmers for demonstration purposes. Market chain was investigated and price of honey was monitored to establish appropriate market linkage.

Results and Discussion

Survey conducted in Yerer and Zuquala watersheds showed that the potential for apiculture development of the study area is enormous. In the district, there are about 1260 beekeepers that mainly use traditional hives. Over 23 different kinds of forage trees which flower at different times of the year that assure adequate supply of bee forage were identified (Table 1). Individual beekeepers in the district own up to 40 traditional hives with strong bee colonies. Average production of honey per hive per season was 4.61 kg and 14.4 kg for traditional and modern hives, respectively.

Table 1. Major bee forage plants and their flowering period in Ada'a-Liben district

Plant type	Vernacular name	Scientific Name	Flowering Period
Trees	Bahir Zaf	<i>Eucalyptus camaldulensis</i>	Year round
	Tiqur Berbere	<i>Schinus molle</i>	Year round
	Kinchib	<i>Euphorbia toritoli</i>	Year round
	Girar (wacho)	<i>Acacia seyal</i>	August - February
	Girawa	<i>Vernonia amygdalina</i>	December - May
	Besana	<i>Crotom macrusachys</i>	April - July
	Wanza	<i>Cordia africana</i>	October - March
	Tedecca	<i>Acacia negrii</i>	August - September
Bushes	Sensel	<i>Justitia schimperana</i>	Year round
	Gesho	<i>Rhamnus prinoides</i>	Year round
	Agam	<i>Carissa edulis</i>	Year round
	Kega	<i>Rosa abyssinica</i>	Year round
	Koshim	<i>Dovalis abyssinicus</i>	Year round
	Kazamier	<i>Casimiroa edulis</i>	Year round
Shrubs	Tenjut	<i>Otostegia integrifolia</i>	Year round
	Asta	<i>Ericca arborea</i>	Year round
	Mech	<i>Guizatia scabra</i>	August - February
	Tosegne	<i>Satureja spp</i>	September - December
Crops	Bakela	<i>Vicia faba</i>	September - October
	Ater	<i>Pisum sativum</i>	September - October
	Shmbera	<i>Cicer Arietinum</i>	October - February
	Suf	<i>Carthamus tinctorius</i>	November - February
	Denech	<i>Solanum tuberosum</i>	April

Four pilot intervention sites were selected, i.e. Yerer, Godino, Denkaka, and Adulala (Zuquala) rural *Kebeles* of the district. Between 2005 and 2007, about 60 beekeepers received practical training on improved beekeeping. Although there is a Cooperatives Promotion Office and four micro-credit institutions in the district, beekeepers were not aware of or have not been organized to receive any services from these offices due to absence of institutional linkages. Information on input suppliers was not available to the beekeepers or the stakeholders in the area. There was also no research–extension–farmers’ linkage for apiculture development in district. The project, in collaboration with the district Cooperatives Promotion Office, legally established four beekeepers cooperatives after conducting a series of meetings and training programmes. Executive members of the cooperatives then received training on administrative and financial management.



Figure 1: Traditional (left) and improved (right) apiary

Problems associated with honey production were reduced due to improvement in the traditional apiary management system and introduction of improved hives (Figure 1). As a result, average yield per traditional hive per season increased (Table 2) by about 40% in 2006 (5.33 kg/hive per season) compared to the average yield in 2005 (3.8 kg/hive per season). During the two years intervention period, 40 transitional hives (Kenyan top-bar, KTB) and 80 wooden framed hives (Langstroth) were introduced into the production system. Following the introduction of these improved hives, more farmers are obtaining these hives on credit basis facilitated by the IPMS project. In general, over the two years of intervention, improvement in apiary management has been observed and the quantity and quality of honey produced has increased. Establishment of beekeepers cooperatives enabled farmers to access input supply, credit, and information on modern beekeeping as well as to easily share knowledge, expertise and other resources.

The marketing study showed that small traders in Dukem town have direct connection and contractual arrangements with the beekeepers in the district. These traders have established a long tradition of selling honey comb to passer-by consumers on the main Addis-Djibouti highway. As a result, 97 percent of the honey is sold to traders at the village level. The average price of honey that beekeepers receive in the village level was Birr[‡] 27.50/kg. In Dukem town, the average price of honey that traders ask for is Birr 45/kg; which is 63.6% higher than the farm gate price. In Addis Ababa, it could be sold for double the farm gate price at 55 Birr/kg. The long tradition of selling honey comb for a higher price on the road side of Dukem town has become an incentive for beekeepers in the area.

[‡] 1 USD = 9.6 Ethiopian Birr

Table 2. Average honey production in the four pilot areas (from July 2005 to December 2007).

Rural Kebele	Average yield in kg/hive/season (2005-07)								
	Traditional			Transitional			Modern		
	July 2005	Nov. 2006	June 2007	July 2005	Nov. 2006	June 2007	July 2005	Nov. 2006	June 2007
Yerer	4.6	5.5	7.5	NA	31.5	35.0	14.4	35.0	37.0
Adulala	3.9	4.4	5.5	NA	NA	35.0	15.0	30.0	35.0
Godino	3.2	3.8	5.0	NA	NA	25.0	NA	NA	NA
Denkaka	3.5	5.3	7.0	NA	32.5	63.0	NA	NA	NA

NA = Not Available

Conclusion and Outlook

Step-by-step approach that integrates apiculture potential, problem identification and intervention processes that recognizes farmer indigenous knowledge, and includes capacity building, improvement of the production system, cooperative formation and market and institutional linkages improved apiculture development in Ada'a-Liben district. Information exchange between beekeepers, potential buyers around the area including local wholesalers, an agro-industry, and honey and wax processors, beekeeping input suppliers, cooperative offices, credit institutions, agriculture extension and research organizations is found to be key factor in the intervention process. Since the district is also known for fruits, horticulture and floriculture production, integration of apiculture development in the agriculture production system has a huge advantage for pollination. This apiculture development experience could be scaling out and up to include other potential areas in the district and other districts with similar agro-ecologies.

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