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[Amente Negussa Bayata](#) *

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Article

The Impact of Market Challenges on Adoption of Transitional Beehive in Ethiopia

Amente Negussa Bayata

College of Agricultural Economics and Management, Nanjing Agricultural University, Jiangsu, China;
amentnug@gmail.com

Abstract: The adoption of transitional bee hives in Ethiopia faces several challenges, including lack of awareness, high costs, limited access to credit, and limited distribution channels. Traditional hives are preferred by many beekeepers, who are not be aware of the benefits of transitional hives. The high cost of acquiring and maintaining hives also poses a barrier for small-scale beekeepers. Inadequate infrastructure and transportation systems further complicate the adoption process. Government and NGOs are working to raise awareness, provide training, and improve financing and distribution channels, aiming to increase adoption and improve honey production.

Keywords: adoption; transitional beehive; marketing challenges; Ethiopia

Introduction

Ethiopia's rich history and diverse landscapes make beekeeping a vital income source. Ethiopia is embracing transitional beehives as a sustainable approach to honey production, economic growth, and environmental conservation [1]. Traditional methods, such as log hives and clay pots, have limited space, resulting in low honey yields and compromised quality [2]. Transitional beehives provide ample space, leading to higher yields and improved quality [3]. They are also more durable, allowing multiple harvests without harming bees or colonies. Transitional beehives are made from eco-friendly materials like bamboo, reducing deforestation and air pollution [4]. The transition also fosters the development of new skills among beekeepers, enhancing hive management, pest control, and honey processing techniques. This has improved honey quality and increased the market value of Ethiopian honey internationally [5].

Traditional beehives are no longer efficient, leading to the adoption of transitional beehives. Therefore, depending on the technological development of any country to boost yield of honey production more and its quality, and above all based on Ethiopian context, the strategies used by beekeepers in Ethiopia should be changed from traditional to modern beekeeping methods [6]. However, marketing challenges hinder their adoption, highlighting the need for improved practices [7]. The adoption of transitional bee hives in Ethiopia faces a significant marketing challenge due to a lack of awareness among beekeepers about the benefits of modern hives, leading to low demand. Transitional bee hives, despite their modern design and materials, are expensive, making them difficult for small-scale Ethiopian beekeepers to afford due to the initial investment required. The adoption of transitional bee hives in Ethiopia is also hindered by inadequate marketing and distribution channels, particularly in remote and rural areas, and limited retailers and distributors [3].

The Ethiopian government has shown interest in promoting beekeeping for economic development, but lacks support for transitional bee hives for each beekeeper [7]. This lack of resources and training hinders the widespread adoption of these hives, which could have significant benefits for the beekeeping industry and the country's economy [8]. Therefore, the aim of this paper is to investigate the marketing challenges faced by beekeepers in Ethiopia when adopting transitional bee hives and evaluates their impact on the adoption rate.

Methodology

In this study, a combination of qualitative and quantitative research methods was employed to investigate the marketing challenges and their effect on the adoption of transitional bee hives in Ethiopia. The study aimed to identify Ethiopian beekeepers that have adopted or are considering adopting transitional bee hives, using a sample of 200 beekeepers selected using purposive sampling technique. Primary data was gathered through structured interviews with beekeepers and a questionnaire, while secondary data was sourced from relevant literature and reports. The study utilized descriptive and inferential statistics, quantitative measures, and qualitative themes to assess the marketing challenges faced by Ethiopian beekeepers in adopting transitional bee hives. Furthermore, the tobit model was utilized for an econometric analysis to examine the impact of marketing challenges on the adoption rate of transitional bee hives in Ethiopia [9].

Results

The survey outcomes indicate a higher propensity among male-headed households in Ethiopia to adopt transitional beehive technology, in contrast to female-headed households. Specifically, 84.55% of the participants surveyed were from male-headed households. Despite the positive impact of technology on women's livelihoods and community empowerment, there is a significant percentage (45%) of female adopters. The issue may stem from a variety of social and cultural factors, including women's restricted access to resources and decision-making power within households. (Table 1).

Table 1. Demographic characteristics of the sample respondents.

Sex of the respondents	Freq.	Percent	Adopter in %	Non-Adopter in %
Male	170	84.55	55	60
Female	30	15.45	45	40
Total	200	100.00		

Source: Survey data, 2023.

The study reveals that educated farmers find transitional beehives easy to manage, while 14.55% are illiterate adopters. The majority have attained junior, primary, and secondary education. With regard to education level variable, about 41.81% of respondents are adopters of transitional beehive technology, while 58.18% are non-adopters (Table 2).

Table 2. Educational level of the household heads.

Educational level of the household heads	Frequency	Adopter of transitional beehives (in %)	Non-Adopter of transitional beehives (in %)
Illiterate	29	6.08	9.94
Read and write	62	12.92	8.04
Primary (1-4)	24	4.95	10.26

Junior (5-8)	31	6.46	9.84
Secondary (9-12)	27	5.7	10.05
Above	27	5.7	10.05
Total	200	41.81	58.18

Source: Survey data, 2023.

Marketing Challenges Faced by Beekeepers in Adopting Transitional Bee Hives in Ethiopia

Of the total respondents, 25% reported that the main marketing challenges that affect the adoption of transitional bee hives in Ethiopia is the lack of awareness and education among beekeepers. Many beekeepers in Ethiopia are not aware of the benefits and features of transitional bee hives, and therefore, they are hesitant to invest in them. The respondents also presented that, lack of awareness about transitional bee hives is often due to inadequate marketing and outreach programs. Lack of proper training also affects the marketing of transitional bee hive honey, with 20% of respondents stating they lack knowledge on hygienic honey handling, resulting in lower honey quality and business profitability (Table, 3).

About 15% of the beekeepers face challenges in adopting transitional bee hives due to high costs, primarily due to limited financial resources, leading to lower adoption rates and preference for more affordable traditional hives. According to 10% of beekeepers respondents traditional beekeeping practices pose significant marketing challenges for transitional beehive adoption due to resistance change traditional beekeeping practices (Table, 3).

Transitional honey, produced from bee hives transitioning from conventional to organic practices, faces challenges in the Ethiopian market due to limited market demand and awareness of organic products (10% of the respondents). The availability of transitional bee hives and lack of proper distribution channels and marketing strategies (10% of the respondents) also affect the adoption of this type of honey, affecting its popularity globally (Table, 3).

The lack of government support and incentives for transitional bee hives in Ethiopia is hindering their promotion and marketing. As 5% of beekeepers believe, the government plays a crucial role in creating awareness about the benefits of these hives. Additionally, according to another 5% response, obtaining financing for transitional bee hives is challenging due to the lack of understanding among financial institutions and donors (Table, 3).

Table 3. Marketing challenges faced by beekeepers in adopting transitional bee hives in Ethiopia.

Variable	Frequency	Percentage
Lack of awareness about transitional bee hives	50	25
Limited access to training and technical support	40	20
High initial cost of transitioning to new hives	30	15
Resistance to change traditional beekeeping practices	20	10
Lack of market demand for transitional honey	20	10
Limited availability of transitional bee hives	20	10
Lack of government support and incentives	10	5
Difficulty in obtaining financing for transition	10	5

Source: Survey data, 2023.

The Impact of Marketing Challenges on the Adoption Rate of Transitional Bee Hives in Ethiopia

The adoption of transitional bee hives in Ethiopia has been facing several marketing challenges that have had a significant impact on its adoption rate. These challenges range from lack of awareness, inadequate distribution channels, and competition from traditional beekeeping methods to high production costs and limited resources for promotion and advertising.

Influence of Explanatory Variables

The adoption rate of transitional bee hives in Ethiopia is hindered by a lack of awareness among beekeepers, with those more aware increasing their adoption rate by 37%. Rural beekeepers are hesitant to adopt this new technology due to inadequate education and training services (Table 4).

The study reveals that 29% of beekeepers adopt modern transitional bee hives, highlighting the need for improved distribution channels. Consequently, small-scale Ethiopian beekeepers, which rely on local suppliers for beekeeping equipment, face challenges in accessing transitional bee hives due to inadequate distribution channels (Table 4).

Further, traditional beekeeping methods in Ethiopia are highly competitive, with 50% of farmers preferring traditional methods. This makes it difficult to adopt transitional beehives quickly, as they are deeply ingrained in Ethiopian culture and have lower production costs, making them more favorable for small-scale beekeepers (Table 4).

High production costs of transitional bee hives, made of durable materials and advanced technology, significantly reduce their adoption rate, affecting small-scale beekeepers who cannot afford these hives. The increase in the production cost of a transitional bee hive leads to a decrease in the adoption rate of beekeepers by 80%. Advanced technology-driven, durable hives are expensive and require advanced production, making them unaffordable for small-scale beekeepers, limiting their adoption (Table 4).

Limited resources for promotion and advertising have hindered the adoption rate of transitional bee hives in Ethiopia, with a 27% adoption rate observed among beekeepers with access to resources. This lack of awareness hinders market growth (Table 4).

Table 4. Estimates of Tobit Model of different variables on adoption of transitional beehive.

PACKEGE	Coef.	Std. Err.	t	P>t	Marginal effect(dy/dx)
EDUCHH	-.0176644	.0304239	-0.58	0.563	.0427346
AWERNESS	.376596	.1130329	3.33	0.001**	-.1521972
FAMSIZE	.0232832	.0201672	1.15	0.251	.0633202
LIVHOLD	-.125386	.1056423	-1.19	0.238	.0843404
FALAND	-.0787149	.1065746	-0.74	0.462	.1328625
DISTRIBUTION	-.2929731	.1312009	-2.23	0.028*	-.0325064
FQUCOTAC	.1119709	.1510469	0.74	0.460	.4118368
COMPTION	.5065607	.2040833	2.48	0.015*	.9117173

PRCOST	-.8093607	.1946162	-4.16	0.000***	1.195723
AVAACC	.1249055	.1165794	1.07	0.287	.3563449
RESOURCES	.2736685	.124396	2.20	0.030*	.5206257
PERCETAT	-.1027309	.2595516	-0.40	0.693	.4125441
_cons	.0500422	.2506832	0.20	0.842	.5477112
/sigma	.3560377	.0398418			
Log likelihood	-33.320639				
Number of obs	110				
LR chi2(15)	153.91				
Prob> chi2	0.0000				
Pseudo R2	0.6978				

Source: Survey data 2023, ***, **, * represents the variables are significant at 1%, 5% and 10% respectively.

Conclusions

The marketing obstacles encountered by the implementation of transitional beehives in Ethiopia are primarily attributed to a lack of awareness, insufficient distribution channels, and competition from conventional beekeeping techniques. These challenges are further compounded by the high costs associated with production and the limited resources available for promotion and advertising.

These challenges need to be addressed to promote the adoption of these hives and boost the beekeeping industry in the country.

Efforts must be exerted to enhance the awareness of beekeepers regarding the advantages of transitional beehives. This can be achieved through the implementation of training programs, workshops, and demonstrations. By educating beekeepers about the benefits associated with these hives, they can be motivated to embrace their utilization. To facilitate the adoption of transitional beehives, the government can offer credit to beekeepers, assisting them in the purchase of these hives. This initiative will render the hives more affordable for small-scale beekeepers, thereby encouraging them to transition from traditional hives. Furthermore, it is of utmost importance that the government prioritizes investing in the development of infrastructure in remote areas, with the objective of enhancing market accessibility for beekeepers. This will enable them to effectively sell their honey and augment their income, subsequently facilitating their ability to invest in transitional beehives. In addition, the government should extend financial and policy support to the beekeeping industry. This support can encompass tax incentives, grants, and policies that promote the utilization of transitional beehives. By providing such assistance, beekeepers will be motivated to adopt these hives, consequently fostering the growth of the industry.

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