



Counselling Farmers on Improving the Yield of Flowering Crops through Integrated Apicultural Farming for Wealth Creation

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ABSTRACT

This study focused on counselling farmers on improving the yield of flowering crops through integrated apicultural farming for wealth creation. The researchers used a descriptive survey research design and a sample of 50 participants, including traditional bee farmers, staff of agricultural education, and intending apiarists which were purposively selected from a public state owned university, Bamidele Olumilua University of Education, Science and Technology (BOUESTI). Data was collected using a well-structured questionnaire, which was validated by agricultural science and counselling education experts. The instrument's reliability was established through a pilot test, and the data analysis involved descriptive statistics such as frequency, percentage, and mean scores. The two major focus of the questionnaire was to identify various challenges that hinder subsistence farming of apiculture as wealth creation strategies and to also establish the fear level of those who are interested in bee keeping but are afraid of sting. The challenges identified from the findings of this study included poor credit services, shortage of forage, inadequate training and manpower, poor apiculture policies, diseases affecting honey bees and poor utilization of technology. In addition, the study found that subsistence farmers and intending apiarist exhibited high levels of apiphobia, which negatively impacted their engagement in apiculture. The researchers through group counselling educated participant on strategies for improving apiculture farming, such as effective crop production management, planting of flowering crops like beans, maize, and mango, and selecting suitable apiary locations away from windy areas. To unlearn anxiety and phobia of bee sting, systematic desensitization (a Counselling Therapy) was used to assist both subsistence farmers and intending apiarists.

Keywords: Apicultural Farming, Wealth Creation, Apiphobia, Systematic Desensitization.

Journal Reference Format:

Makinde, V.I. & Ogunjobi, P.O. (2023): Counselling Farmers on Improving the Yield of Flowering Crops through Integrated Apicultural Farming for Wealth Creation. *Humanities, Management, Arts, Education & the Social Sciences Journal*. Vol. 11. No. 2, Pp 19-32. www.isteams.net/humanitiesjournal. [dx.doi.org/10.22624/AIMS/HUMANITIES/V11N2P3](https://doi.org/10.22624/AIMS/HUMANITIES/V11N2P3)

1. INTRODUCTION

The economic situation in Nigeria where poverty and unemployment are continually increasing calls for diversification to activities that can lead to wealth creation rather than looking for white collar job that are not readily available.



Apiculture otherwise known as bee keeping and Honey production which is an aspect of the agricultural sector and a new area of economic development which is just being opened in Nigeria. It is a new area of investment opportunities for wealth creation with prospect in Nigeria. For close to two centuries, the exploitation of the industry has been going on in advanced countries like Egypt, Syria, United States of America (U.S.A), Great Britain, Italy, China, Kenya etc. (Kehinde and Sidi, 2019). The importance of apiculture is not limited to broadening food production for the rural population but also increased food production in agriculture through pollination of crops, provision of source of income through selling beeswax and honey, as well as promotes rural afforestation programmes to provide honeybees with forage. Regardless of record keeping, available oral traditions and cultural art monuments indicates that the art of traditional bee-keeping had been existing in Zaria in Nigeria and many other States as far back as 1927 (Kugonza, 2009). Apart from Honey and bees wax other production of bee-keeping which constitute raw materials for the manufacturing and health sectors include propolis, royal Jelly, bee venom, bee pollen and pollination of flowering plants for increased yield of farm produce.

In line with sustainable development goal 1,2,3,4 (SDG.1,2,3,4) which focuses on “ End poverty, No hunger, Good health and Well-being and quality education”, the founding fathers of Bamidele Olumilua University of Education, Science and Technology, Ikere Ekiti, (the study area for this research) chose the motto “*learning for self- reliance*”. The institution through Departments of Agricultural Science, Entrepreneurial Studies and other vocational related courses are highly positioned to key in to the present government agenda of wealth creation and take the lead in apicultural services to potential bee- keepers, farmers and the unemployed youth in the immediate society (BOUESTI) Ekiti State and Nigeria in general.

Unfortunately, many subsistence farmers and potential bee farmers are apiphobia due to the traditional belief that rearing of bee is not an easy task and many could not also go into the production because of the fear of being sting. The study therefore focus on the use of a counselling techniques (systematic Desensitization) to help subsistence and intending farmers to remove phobia and also training them in modern apiculture which can also help in improving the yield of their flowering crops.

The main objective of the study is to use counselling strategies to assist farmers on how to improve the yield of flowering crops through integrated apicultural farming. Specifically, the study would:

1. examine the challenges facing subsistence farmers of apiculture in creating wealth;
2. examine the apiphobia levels of potential farmers for necessary counselling intervention;
3. assess the strategies for improving the yield of flowering crops through integrated apicultural farming.

The following questions were raised to guide the study

1. What are the challenges facing subsistence farmers of apiculture in creating wealth in Ekiti State?
2. What is the apiphobia levels of subsistence farmers for necessary counselling intervention?
3. What are the strategies for improving the yield of flowering crops through integrated apicultural farming?



2. LITERATURE REVIEW

2.1 Concept of Apiculture/ Beekeeping

Apiculture or Bee keeping is the art of rearing, breeding and managing honey bee colony in artificial hives for economic gains through the production of honey and other bee products for man's use. The beekeeper is also referred to as the apiarist and the entire colony set up is called Apiary. For bees to produce honey, they feed majorly on nectar and pollen. Beekeeping is the science and art of rearing bees. It is important to keep bees for the production of honey, beeswax, propolis, pollen (bee bread), royal jelly and bee venom; for food, medicine and income as being sought for in recent time. Bee keeping is also important for pollination and recreational activities.

Bee keeping can help low income communities or individuals to earn revenue or additional revenues from selling bee product to achieve sustainable development, (Gupta, Reybroeck, DeWacle, & Bouters, 2022). Moreover, bee keeping contribute to the provision of pollination services, assuring crop yields and helping and maintaining plant biodiversity in natural ecosystem. Despite the improvement in the practice of bee keeping in Nigeria, the number of farmers in subsistence bee keeping is still very low. In order to ensure the proper beekeeping, there are two different methods of Beekeeping. Namely traditional and modern methods.

2.2 Traditional Methods of Bee Keeping

Nomadic bee keeping was widely and successfully practiced in ancient Egypt. In the first millennium B.G & Assyria was known as a land of honey and olives. Today bee keeping is widely practiced in developed countries like the U.S.A. etc. In Nigeria, available records show that the art of beekeeping started in Zaria as far back as 1927. (Kugonza, 2009) Traditional bee-keeping methods have also been recorded in places like Kwara, Kogi, Ogun, Niger, Benue, Plateau and Bauchi states. People keep bees for different reasons. One can take beekeeping as a hobby. Someone else does it for commercial purposes.

Many beekeepers in Zimbabwe inherited the project from their forefathers. This led to the traditional belief in the sacred bees (Nyuctudzegonera) and other factors to the construction of various models of hives. Oral tradition states, the father who testify that honey was understood to be a very special food, and it was available even during difficult times such as drought. However, Khan and Khan (2018) noted that the traditional method of beekeeping is not the best practices. Traditionally, the methods used in Keeping Bee are listed to include Gourd Hives, Pot Hives, Basket Hives, Straw Hives, Hollow-free trunk Hives. Among the merit is that the method is cheap to acquire and could get a lot of propolis while its demerit are that the method is not durable, not friendly to the environment and not hygienic among others.

2.3 Modern Hives

In recent times, modern bee-keeping techniques are evolving in Nigeria and more people are becoming interested in using the products of beekeeping like honey, bee wax, royal jelly, Propolis and bee venom. But in Ekiti State, people are not really aware of the gains of beekeeping or apiculture that it serves as both entrepreneur and wealth creation to both the farmer and other sector of the economy.



In modern beekeeping, carpenters, builders tailors, blacksmith and (yield of crops) crop pollination are promoted. Carpenters make hives, builders construct bee houses. Tailors sew suits, while blacksmith and potters make hive tools and clay hives respectively. In the same vein Guidance Counsellor can assist in sensitization or advocacy services to bring in more farmers into bee production

Modern bee keeping makes use of box hives. Inside this box are wooden frames, which contains the combs. The beekeeper can remove the frames, which contains the combs for inspection. This box is called the brood chamber of the hive and forms the permanent place where the young bees live. The beehive is made of wood, which is resistant to the rotting effect of sun and rain, termite proof and waterproof. A good hive must be a good home for the bee. Hives which commonly used are: Removable comb hives with top bars and Removable comb hives with frame (Khan and Khan, 2018).

The Methods of Modern Bee keeping are the top bar hive and Langstroth hive with a lot of merits over the traditional method which are: The honey extracted is purer and the process of extraction is more hygienic; During extraction, the bees and their comb are not destroyed: The colony yield larger volume of honey; Other products like bee wax, propolis, royal jelly, etc. are realized; The hazards of bee keeping are greatly reduced; and as a result of more knowledge about bees and their activities more people will engage in the bee keeping.

In order for us to understand beekeeping fully, Sarfraz, Siti. Atif, Muhammad, Sana, Saria, Sadia. Nighat, Nor (2018) noted that we do not only have honey as the benefit of beekeeping, we also get other benefits like propolis wax, pollen and royal jelly, bee venom, bee bread or bee pollen (pollination of flowering plants for increased crop yield). Chemwork, Tuiioek. Nganai (2019) in a survey design study with a sample of 134 bee farmers out of a target population of 1500 bee farmers on the factors influencing Honey Production in Marigat, Baringo County, Kenya reported that the results of technological, social, economic and institutional factors affected honey production in Marigat, Baringo County,

It is important to encourage farmers to diversify income in the farm to include other complimentary activities such as bee keeping and agroforestry. The promotion of farmer-to-farmer advocacy services and collaboration with other partners is being reinforced to support beekeeping. It is aimed at improving the development of the subsector through robust extension services, research initiatives, conservation efforts, and the rehabilitation of beekeeping vegetation. Additionally, efforts are being made to organize beekeepers effectively, particularly in terms of marketing bee products, establishing colony multiplication centers, distributing bee colonies, and conserving indigenous honey bee races.

Special encouragement is given to women and youth to engage in beekeeping enterprises. The skills of beekeepers and extension agents in bee management are being developed through training programs. Furthermore, there is a focus on maximizing the utilization of bee wax through intensive training, enhancing bee forage production, and integrating beekeeping practices with water harvesting methods.



2.4 Procedure for Counselling Farmers on Apiculture

A number of factors contribute to personality development and disturbances which may make an individual vulnerable to emotional and cognitive disturbances which when identified and worked upon, such individual will feel fulfilled and actualized. Counselling as a social service where a trained counsellor who uses his acquired skills to assist a troubled client to have deep insight into his ability and capabilities (Makinde 2016) can assist clients in developing strategies for achieving targeted goals in apicultural farming. Counselling is defined as the process of assisting individuals in discovering and developing their educational, vocational, and psychological potentials, with the goal of achieving an optimal level of personal happiness and social usefulness. (Esere, 2020; Makinde *et al*, 2020). It involves helping people to make a desired changes in relation to thinking, feeling and manner of behaving. Counselling could be on an individual basis or as a group using counselling techniques like systematic desensitization.

Systematic desensitization is a therapy approach that combines relaxation techniques with gradual exposure to help client gradually conquer a phobia (Raypole, 2019). A systematic desensitization therapist employs relaxation techniques or a graded exposure to a stimulus to teach a client a new response to the stimulus. (Fear, 2017). Group Counselling on the other hand involves a dynamic interpersonal processes through which one counsellor attends to a number of clients at the same time. Here individual within the normal range of adjustment work in relationship with peer group and a professionally trained counsellor assist them in exploring problems and feelings with the aim to modify clients' attitudes so that they are better able to deal with educational, developmental and behavioural problems (Owuananam in Babatunde & Osakinle, 2013). The dynamism in a group counselling implies that there is a force within which group members organize and operate to achieve their desired goals. According to Michael (2021) described group counselling as a form of talking therapy, where people benefited more from shared living experiences thus it is assumed that bee keeping farmers can benefit in shared experiences offered in group counselling.

Attitude describes the complex construct of the cognitive (knowledge and thoughts), affective (emotions and feelings), and cognitive (intended behaviour). Attitudes toward bees, therefore, may influence farmers' desire to conserve it. According to Davey (1994) in Prokop (2019), insects are normally associated with negative attitudes of dislike, fear, and disgust; hence, bees may further be disliked for their potential to harm people. As such, attitudes towards bees could be influenced by age, gender, level of education, culture, and economy (Oladimeji, Hassan, Sani, and Galadima, 2019) among other factors. Bees also play an important role in pollinating crops. About one third of all plants and plant products eaten by humans depend directly or indirectly on bees for their pollination (FAO, 2019).

Crops pollinated by bees have been proven to produce higher yields and better quality, often at no extra cost for the farmer. Yet, many farmers consider bees and other pollinators as harmful insects. The traditional belief that beekeeping is a difficult task and the fear that bees sting had prevent many farmers most especially the subsistence farmers from investing in beekeeping despite the knowledge of the economic benefits of honey. All the negative thinking and cognitive distortions that caused many farmers to avoid beekeeping will be identified, disputed and new feelings imputed. It is believed that using group counselling therapy as counselling strategy will help to change the negative thinking of the farmers and thus improve bee rearing for wealth creation.



According to Michael (2021), counseling programs provide a unique environment where individuals can share their experiences, explore issues in depth, and avoid feelings of self-isolation and loneliness. Organized counseling is cost-effective and offers the opportunity to help others while also receiving assistance. It empowers individuals, facilitates personal growth and change through increased sensitivity and insight. Based on this perspective, counseling programs are designed to aid students, graduates, and farmers in decision-making processes, with the guidance of a professional counselor. As described by Owuamanam (2003) in Babatunde and Osakinle (2013), counseling programs serve as a preventive measure, providing a platform for individuals to discuss common problems and address issues related to their education and vocational concerns.

2.5 Wealth Creation, Food Safety and Apiculture

Wealth creation is described as strategic implementation of policies meant to contribute to poverty eradication, focusing on: Improving local governance for sustainable local economic growth: Employment creation; increased production and productivity of enterprises; increased incomes and broadening of tax base for local governments to deliver the mandated services. It is a strategy towards the enhancement of local economic development in order to increase local incomes and expand local revenue bases. Burst and Peter, (2020) explained that wealth creation entails national efforts to accelerate growth and create employment by empowering the poor and vulnerable groups to participate in and benefit from emerging opportunities in which Ekiti State government is very much concerned through the present agenda,

Food safety is characterized by the physical, social, and economic access of individuals to an adequate supply of safe and nutritious food that meets their dietary needs and preferences, enabling them to lead active and healthy lives. This concept also emphasizes the provision of healthy food for every individual (Yusuf, Abubakar, & Ahmad, 2019). An important aspect of food safety is the inclusion of animal products, such as milk, eggs, and meat, which are crucial components of any food safety policy. The global demand for these products is high and expected to increase further. Unlike bees, humans perceive tangible nourishment in these products, which are rich in energy and protein. Consequently, while people may overlook a spoonful of honey, they prioritize these animal-derived products due to the direct or indirect involvement of bees in their production.

The connection between apiculture and food safety can be understood from various angles. Firstly, apiculture plays a crucial role in ensuring the pollination, quality, and yield of crops that depend on insect pollinators. This biological function is essential for maintaining the overall health and productivity of entomophilous crops. Secondly, apiculture has a significant impact on biodiversity and water balance, which in turn supports the cultivation of food crops that are vital components of the human food chain. The presence of bees contributes to the planting and growth of these crops, thereby maintaining a balanced ecosystem and ensuring a sustainable food supply. Lastly, apiculture contributes to the production of safe and uncontaminated food sources directly consumed by humans. The beekeeping process ensures the production of feed with the necessary levels of safety and hygiene, guaranteeing that the food is suitable for human consumption.



2.6 Empirical Review

Bunde and Kibet (2016) conducted a study in Baringo County, Kenya, to examine the socio-economic factors that influence the adoption of modern beekeeping technologies. The study included the entire population of households in Baringo County as the target population, and a sample size of 294 beekeeping farmers was selected. Primary data was collected using questionnaires, and the collected data was analyzed using descriptive statistics, including frequency, means, and percentages, with the assistance of SPSS software. The study found that 29.9% of the respondents practiced beekeeping, while 70.1% of the farmers did not engage in beekeeping. The challenges faced by bee farmers were ranked in descending order, with the main challenges identified as the lack of beekeeping materials, limited extension support, and insufficient capital, among other challenges.

In terms of income, the sale of cereals ranked highest among the various sources of farm enterprise, while the sale of bee products ranked fourth. The results of the study indicated that the mean age of adopters was lower than that of non-adopters and showed a negative correlation with $p=0.010$. Additionally, the logistic regression model revealed that gender ($\beta=0.252$, $p=0.1$), age ($\beta=0.017$, $p=0.05$), family size ($\beta=1.656$, $p=0.05$), and education ($\beta=0.446$, $p=0.01$) were significant factors affecting the adoption of modern beekeeping technologies. The logistic model showed that farm size and livestock were not found to be significant variables. However, it was found that modern beekeeping makes a significant contribution to households' income. In light of this finding, it is recommended that the Ministry of Livestock Development and Fisheries, along with other development agencies operating in the area, promote modern beekeeping by providing necessary materials such as smokers and protective gear, as well as offering training on modern beekeeping practices. These measures will help farmers enhance their yields and serve as effective strategies to alleviate poverty.

Gugulethu, Abel, and Robert (2020) conducted a study in a maize-producing region of Zimbabwe to examine farmer perceptions, knowledge, and attitudes towards bees and pollination. The research utilized semi-structured questionnaires, with a total of 828 participants ($N=828$). Generalized linear models and logit regressions were employed to identify the factors that influenced farmers' ability to recognize bees, their knowledge of pollination, and their fear of bees. The findings revealed that the ability to identify bees was positively associated with education and years of farming experience, while it was negatively associated with fear towards bees ($p<.001$). Fear towards bees was found to be influenced by gender, knowledge of bee attack fatalities, and the perception of the importance of bees ($p<.001$).

A majority of the respondents (67%) demonstrated knowledge of pollination ($p<.001$). Furthermore, the probability of having knowledge about pollination was higher among individuals who relied on media as a source of farming information compared to those who relied on extension services or school education ($p<.001$). The research findings indicate that in order to enhance bee conservation efforts, it is crucial to increase farmers' awareness of the diverse bee species and highlight their importance as pollinators, emphasizing their benefits compared to the minimal risks associated with stings.



By reducing fear and increasing understanding, farmers are more likely to be motivated to conserve bees. It is recommended to make bee awareness programs easily accessible to women, youth, and individuals with limited formal education, as they demonstrated the lowest levels of knowledge about bees. These findings also align with existing evidence suggesting that extension officers should utilize various media platforms to effectively disseminate information to different target audiences. In his study titled "Farmers' Preferences for Development Intervention Programs: A Case Study of Subsistence Farmers from East Ethiopian Highlands," Bekele (2023) aimed to gain a deeper understanding of how farmers perceive the relevance of various development intervention programs. The research employed a stated preference method to elicit farmers' subjective rankings of agricultural problems and their preferences for specific development interventions.

A random utility model was utilized to identify the factors that influence these preferences. The study was conducted through a survey conducted in the Hunde-Lafto area of the East Ethiopian Highlands. Semi-structured questionnaires were utilized to conduct individual interviews with a randomly selected sample of 145 farm households. The findings of the study indicate that farmers prioritize drought, soil erosion, and the shortage of cultivable land as significant agricultural production challenges. Additionally, a considerable number of farmers identified low market prices for farm products and high costs of purchased inputs as major concerns. Regarding development intervention preferences, farmers categorized them into four main areas: market, irrigation, resettlement, and soil and water conservation. Analysis using multinomial logit revealed that specific socioeconomic factors and the subjective ranking of agricultural problems significantly influenced these preferences.

In the research conducted by Kristina, Kibebew, Sascha, and Robert (2021) regarding the challenges and perspectives for beekeeping in Ethiopia, the study examined the difficulties faced by beekeepers. Secondary data was used in the study. The authors identified that honey bees are crucial for pollinating fruits and vegetables and for producing honey and other hive products. Beekeeping is seen as a sustainable and promising activity for local communities, particularly for rural individuals seeking additional income through non-timber forest products. Kristina et al. (2021) revealed that minimal land and initial costs, contributes to biodiversity conservation, and enhances crop yields. Ethiopia ranks among the top ten global producers of honey and beeswax; however, its participation in the international honey trade remains relatively minor. Unlike large-scale beekeepers using modern techniques found in most leading honey-producing countries, the majority of Ethiopian beekeepers are small-scale producers practicing traditional beekeeping. Kristina et al. (2021) indicated that honey bees, honey bee pests, marketing strategies, cultural aspects and major challenges of beekeeping.

3. METHODOLOGY

The study adopts the descriptive survey research design; the population of the study will comprise all the bee farmers in Ekiti State. A sample of 15 traditional bees' farmer be randomly selected from beekeepers within the three senatorial districts in Ekiti State. A purposive sampling technique was used to select 10 staff of agricultural education and 25 intending apiarist from the public universities in Ekiti State, thereby making a total of 50 sample size. A well-structured questionnaire was used for the study.



The questionnaire items were structured in a five-point of strongly agree 5 points, agree 4 point, undecided 3 point, disagree 2 points, and strongly disagree 1 point. The questionnaire was validated by experts in agricultural science and counselling education for face and content validity. The reliability of the instrument ensured through a pilot-test conducted on the instrument, selecting 10 farmers outside the sample of the study. The reliability coefficient of 0.86 was obtained using Cronbach Alpha method which indicate that the instrument is reliable to collect the necessary data for the study. The data will be analysed using descriptive such as frequency, percentage and mean score to answered the research questions. Any mean score equal to 3.00 and above is regarded as agreed while any mean score below 3.00 is regarded as disagreed.

4. RESULTS

4.1 Descriptive Analysis

Research question 1: What are the challenges facing subsistence farming of apiculture in creating wealth in Ekiti State?

Table 1: Responses of the challenges facing subsistence farming of apiculture in creating wealth in Ekiti State

S/N	Challenges facing subsistence farming of apiculture	N	SA	A	UN	D	SD	Mean	Decision
1	Shortage of forage is a challenge	50	18 (36%)	11 (22%)	5 (10%)	10 (20%)	6 (12%)	3.50	Agreed
2	Inadequate training and manpower	50	32 (64%)	14 (28%)	-	2 (4%)	2 (4%)	4.44	Agreed
3	Poor policy in apiculture	50	32 (64%)	12 (24%)	2 (4%)	2 (4%)	2 (4%)	4.40	Agreed
4	Diseases and honey bee	50	11 (22%)	17 (34%)	10 (20%)	5 (10%)	7 (14%)	3.40	Agreed
5	Poor use of technology	50	18 (36%)	19 (38%)	2 (4%)	7 (14%)	4 (8%)	3.80	Agreed
6	Marketing is a problem in honeybee production	50	21 (42%)	19 (38%)	2 (4%)	4 (8%)	4 (8%)	3.98	Agreed
7	The shortage of bee colony	50	16 (32%)	30 (60%)	1 (2%)	2 (4%)	1 (2%)	4.16	Agreed
8	Inadequate funding of apiculture	50	25 (50%)	17 (34%)	3 (6%)	2 (4%)	3 (6%)	4.18	Agreed
9	Poor knowledge of apiculture among agriculturist	50	10 (20%)	30 (60%)	9 (30%)	9 (18%)	1 (2%)	3.98	Agreed
10	Poor coordination between the research extensions and farmers	50	17 (34%)	18 (36%)	4 (8%)	4 (4%)	7 (14%)	3.68	Agreed
11	Lack of research station to address issue relating to agriculture	50	12 (24%)	22 (44%)	10 (20%)	6 (12%)	-	3.80	Agreed
12	Lack of credit services	50	27 (54%)	17 (34%)	3 (6%)	2 (4%)	1 (2%)	4.34	Agreed
Grand Mean Value								3.97	Agreed

Any mean score equal to 3.00 and above is Agreed, any mean score below 3.00 is Disagreed
 Field Survey 2023



The results in Table 1 show the responses of the respondents on the challenges facing subsistence farming of apiculture in creating wealth in Ekiti State. The analysis in Table 1 revealed that the majority of the respondents indicated that challenges identified in Items 1–12 are facing subsistence farming and apiculture in creating wealth in the state since all the mean scores are greater than the 3.00 cutoff point of the decision rule. The grand mean value of 3.97 further justifies that the respondents are in agreement that all the challenges affecting subsistence farming and apiculture are creating wealth in Ekiti State.

Research Question 2: What is the apiphobia levels of subsistence farmers for necessary counselling intervention in Ekiti State?

Table 2: Responses of the apiphobia levels of subsistence farmers for necessary counselling intervention in Ekiti State

	Apiphobia levels of subsistence Farmers	N	VH	H	UN	L	VL	Mean	Decision
13	The fear and ignorance of being stung by the bees	50	24 (28%)	21 (42%)	4 (8%)	1 (2%)	-	4.36	High
14	Absconding of bees due to pest and predator as well as forage	50	21 (42%)	16 (32%)	7 (14%)	6 (12%)	-	4.04	High
15	Fear of the pricing of the product	50	22 (44%)	21 (42%)	2 (4%)	3 (6%)	2 (4%)	4.16	High
16	Fear of the scarcity of modern processing tools and equipment	50	26 (52%)	18 (36%)	4 (8%)	2 (4%)	-	4.36	High
17	Fear of inadequate technical skills of the farmers	50	11 (22%)	24 (48%)	6 (12%)	8 (16%)	1 (2%)	3.82	High
18	Fear of high cost of equipment for modern bee keeping	50	13 (26%)	22 (44%)	8 (16%)	7 (14%)	-	3.72	High
19	Fear of thief in stealing the bees before harvesting	50	15 (30%)	15 (30%)	3 (6%)	9 (18%)	8 (16%)	3.40	High
Grand Mean value								3.98	High

Any mean score equal to 3.00 and above is Agreed, any mean score below 3.00 is Disagreed
 Field Survey 2023

The result in Table 2 show the responses of the respondents on the apiphobia levels of subsistence farmers for necessary counselling intervention. The analysis presented in Table 2 show that majority of the respondents agreed that there are subsistence Farmers are having some apiphobia as all the mean scores are greater than 3.00 cut off point. The grand mean value of 3.98 indicated that the apiphobia levels of subsistence Farmers is high. The result implies that subsistence Farmers are have apiphobia in Ekiti State.



Research Question 3: What are the strategies for improving the yield of flowering crops through integrated agricultural farming?

Table 3: Responses of the Strategies for Improving the Apiculture Farming on Crops

	Strategies for improving the apiculture farming on crops	N	SA	A	UN	D	SD	Mean	Decision
20	Effective crop production management	50	14 (28%)	25 (50%)	5 (10%)	5 (10%)	1 (2%)	3.92	Agreed
21	Planting of flowering crops such beans, maize, mango e.t.c	50	10 (20%)	31 (62%)	7 (14%)	2 (4%)	-	3.98	Agreed
22	Avoid windy areas while placing apiaries	50	4 (8%)	34 (68%)	6 (12%)	3 (6%)	3 (6%)	3.66	Agreed
23	Placing of apiaries in accessible areas	50	3 (6%)	36 (72%)	3 (6%)	5 (10%)	3 (6%)	3.62	Agreed
24	Avoid the use of insecticide	50	22 (44%)	10 (20%)	9 (18%)	9 (18%)	-	3.90	Agreed
25	Agricultural extension agents should be proactive	50	13 (26%)	28 (56%)	6 (12%)	2 (4%)	1 (2%)	4.00	Agreed
26	There is need for modern bees keeping practices	50	17 (34%)	26 (52%)	1 (2%)	4 (8%)	2 (4%)	4.04	Agreed
27	The use of improved bee keeping equipment	50	25 (50%)	17 (34%)	4 (8%)	4 (8%)	-	4.26	Agreed
28	Avoiding of indiscriminate bush burning	50	19 (38%)	24 (48%)	6 (12%)	1 (2%)	-	4.22	Agreed
29	Controlling application of pesticide and insecticide from the hives	50	18 (36%)	25 (50%)	5 (10%)	2 (4%)	-	4.18	Agreed
30	Counselling of bee keepers through regular seminars	50	17 (34%)	24 (48%)	3 (6%)	3 (6%)	3 (6%)	3.98	Agreed
31	Planting of bee flora around apiary to save bee from stress of flying long distance	50	30 (60%)	14 (28%)	1 (2%)	5 (10%)	-	4.38	Agreed
Grand Mean Value								4.01	Agreed

Any mean score equal to 3.00 and above is Agreed, any mean score below 3.00 is Disagreed
 Field Survey 2023



The result in Table 3 revealed the agreement of the respondents on the strategies for improving the apiculture farming on crops. All the mean scores in the Table 3 are greater than 3.00 cut off point, which show that respondent agreed that some strategies can be used to improves the Apiculture Farming on Crops. The grand mean value of 4.01 implies that respondents believed that item 20-31 are the strategies to improves the Apiculture Farming on Crops.

5. DISCUSSION OF FINDINGS

Findings revealed that challenges facing subsistence farming and apiculture in creating wealth in Ekiti State include poor credit services, shortage of forage, inadequate training and manpower, poor policy in apiculture, diseases and honey bees, poor use of technology, marketing being a problem in honeybee production, the shortage of bee colonies, poor knowledge of apiculture among agriculturists, inadequate funding of apiculture, poor coordination between the research extensions and farmers, and a lack of research stations to address issues relating to agriculture. The study corroborate with Bunde and Kibet (2016) who enumerated the challenges facing Bee farmers to include lack of Bee keeping materials, extension support, lack of capital among other challenges.

Findings of this study revealed that apiphobia levels of subsistence Farmers is high due to the fear and ignorance of being stung by the bees, absconding of bees due to pest and predator as well as forage, fear of the pricing of the product, fear of the scarcity of modern processing tools and equipment, fear of inadequate technical skills of the farmers, fear of high cost of equipment for modern bee keeping, and fear of thief in stealing the bees before harvesting. The findings support the study of Kristina, Kibebew, Sascha and Robert (2021) summarized the knowledge on Ethiopian beekeeping, honey bees, honey bee pests, marketing strategies, cultural aspects and major challenges of beekeeping. Also, Oladimeji, Hassan, Sani, and Galadima, (2019) posited that attitudes toward bees, therefore, may influence farmers' desire to conserve it and insects are normally associated with negative attitudes of dislike, fear, and disgust; hence, bees may further be disliked for their potential to harm people.

Finally, the findings revealed different strategies for improving the apiculture farming on crops and these includes effective crop production management , planting of flowering crops such beans, maize, mango e.t.c, avoiding of windy areas while placing apiaries, placing of apiaries in accessible areas, avoid the use of insecticide, agricultural extension agents should be proactive, there is need for modern bees keeping practises, the use of improved bee keeping equipment, avoiding of indiscriminate bush burning, controlling application of pesticide and insecticide from the hives, counselling of bee keepers through regular seminars and planting of bee flora around apiary to save bee from stress of flying long distance. The study supported the research outcome of Gugulethu, Abel & Robert (2020) whose findings suggest that to improve bee conservation, farmers should be made more aware of the diverse bee fauna, specifically, regarding their benefits as pollinators compared with the few danger (resulting from stings) in order to reduce fear and increase willingness to conserve bees. The findings support Bunde and Kibet (2016) who advocated that the promotion of modern bee keeping by availing bee keeping materials such as smokers, protective gears, and train farmers on modern bee keeping practices to enable them improve their yields as part of the strategies to alleviate poverty.



6. CONCLUSION AND RECOMMENDATIONS

The study concluded that based on the findings of this study, different challenges are facing subsistence farming and apiculture, which is hindering the creation of wealth in Ekiti State. Also, subsistence Farmers have a high level of apiphobia, which detaches them from bee farming in the study area. The study also concluded that many strategies could be adopted to improve apiculture farming on crops in Ekiti State. Therefore, the study recommended that regular counselling through seminars and workshops should always be organized to teach the subsistence farmers and intending apiarists how to modernize the rearing of bees, thereby giving room for people's medical consumption and the exportation of hygienic honey. The regular counseling will help to remove phobia of bee keeping. Also, Government and the University authorities should invest massively in the bee farming and the training of apiarist so as to achieve job/wealth creation, self-reliance, affordable healthcare delivery system through scientific bee keeping and sustainable economic environment.

Special Acknowledgements

The authors of this article warmly acknowledge TETFund for sponsoring this research. Also, the authors acknowledge the comments or suggestions provided by University TETFund Desk Officer and CERAD Desk Officer, Bamidele Olumilua University of Education, Science and Technology Ikere Ekiti). Your contributions in this study are appreciated.

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