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Entrepreneurship Skills Required by Youths for Effective Participation in Honey Production Occupation in Bayelsa State, Nigeria

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Abstract

The study examined the entrepreneurship skills required by youths for effective participation in the honey production occupation in Bayelsa State, Nigeria. The study adopted the descriptive research design. The population for the study, comprised 150 respondents, comprising 70 male and 80 female students of the agricultural education unit in the Department of Vocational and Technology Education, Faculty of Education, Niger Delta University, Bayelsa State, Nigeria from the four different levels viz: 100, 200, 300 and 400 in the 2018/2019 session. The instrument for data collection was a 54-item structured questionnaire on a 4-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with corresponding numerical values of 4, 3, 2, and 1 respectively. The instrument was face-validated by three experts and the Cronbach alpha reliability method was used which yielded a reliability coefficient of 0.62. The data collected were analyzed using weighted mean score while t-test statistics was used for testing the null hypotheses at 0.05 level of significance. The study identified eleven apiculture planning skills, sixteen apiculture management skills, ten preparatory skills for harvesting honey and eleven honey processing skills. There was no significant difference in the mean responses of male and female students of agricultural education on the entrepreneurship skills required by youths for honey production occupation. Based on the findings, the study recommends, among others, that trainers should redouble their efforts to equip learners with entrepreneurship skills in apiculture enterprise. Also, government should intensify campaigns to encourage youths into honey production occupation.

Keywords: Entrepreneurship; Honey; Occupation; Participation; Skill; Youths.

1. Introduction

Experience has shown that apiculture is teaching humanity the art and science of managing plants for health, wealth, environmental conservation, hard work, good division of labour and workable unity of mankind (Koontz and Weighrich, 2022). Although many people have phobia and allergies to bee and its products, nevertheless the products from this nature's gift are wonderful as they have no competitors in their raw materials (plant wastes). Basic requirements in honey bee keeping are first and foremost interest, love of nature and cleanliness on the part of

the intending apiculturists. Others include established orchard or places that have abundant flowering plants (food crops, ornamentals, shrubs and trees), clean fresh water and minimal noise. Adamu (2014), stated that Nigeria covers a land mass of 983,213km² with diverse type of vegetation that is good for bee keeping. Geographically, Bayelsa State is in the South Eastern part of Nigeria, bounded by Delta State on the North, Rivers State on the East and the Atlantic Ocean on the Western and Southern parts. The State is located within latitude 04° 15'' North, 05° 4'' East, with an area of about 21,110 square kilometers (Ekiyor, 2006).

The vegetation has thick forest which provides an ecological niche for apiculture. Bees are the only insects that produce (very cheaply too), items commonly used by man with many health benefits and sustains the job of its practitioners (Ndu, 2010). Bee keeping by its benefits in environmental conservation and healthy products, is a career that should be improved for sustained human development especially in the study area because honey production occupation could provide sustainable income to interested youths.

Occupation is explained by Osinem and Nwoji (2005) as any type of job, business, career or trade that individuals undertake to earn a living. For the youths to embark on honey production occupation, certain skills are needed. Skill is a well-established habit of performing tasks in a manner acceptable by workers in a profession. Okorie (2000), conceived skills as those special abilities required by learners to perform human activities. Skills which are needed to plan, establish and successfully run an enterprise using human and material resources are known as entrepreneurship skills. According to Uduma (2004), entrepreneurship skills are activities or actions that are geared towards the management of an enterprise, be it in the form of production, processing and marketing. In the opinion of Ashmore (2005), it involves the skills for discovering the business ideas, planning the business and organizing; that is, providing the resources for the business to take off. It also includes implementation and evaluation of the business venture. In the context of this study, they are activities or actions that are geared towards efficient use of resources such as land, labour, capital and brain work to carry out the tasks of honey production occupation successfully. Youths can be trained for competence in honey production using identified entrepreneurship skills.

Youth, according to the United Nations General Assembly Report (2017), is a young person of 15 to 24 years of age bracket. In developing countries (like Nigeria), this age range may go up to 30 years (Uzoagulu, 1997). In this study, youths are young people who embarked on honey production occupation to earn a living, but they produce below standard. In order to run their enterprise effectively, it becomes logical that they should be equipped with entrepreneurship skills in honey production occupation to enable them produce in line with NAFDAC regulations (standard).

At present many youths in honey production lack the entrepreneurship skills and thus finds it difficult to run their business for profit. Consequently, many of them drop out of the business and resort to adopting criminal strategies to meet their economic needs (Olaitan *et al.*, 2000). In order to bridge the gap and provide the entrepreneurship skills in honey production which is lacking, it becomes imperative to identify honey training packages to equip youths with the relevant entrepreneurship skills as new entrants into honey production business.

2. Objectives of the Study

The main objective of the study is to determine the entrepreneurship skills required by youths for effective participation in honey production occupation in Bayelsa State, Nigeria. Specifically, the study sought to:

1. identify the entrepreneurship skills required by youths for planning apiculture enterprise;
 2. ascertain the entrepreneurship skills required by youths for managing apiculture enterprise;
 3. determine the entrepreneurship skills required by youths for preparing honey harvest and harvesting honey;
- and
4. determine the entrepreneurship skills required by youths for processing honey.

2.1. Research Questions

The following research questions were developed to guide the study.

1. What are the entrepreneurship skills required by youths for planning apiculture enterprise?
2. What are the entrepreneurship skills required by youths for managing apiculture enterprise?
3. What are the entrepreneurship skills required by youths for preparing honey harvest and harvesting honey?
4. What are the entrepreneurship skills required by youths for processing honey?

2.2. Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

HO₁: There is no significant difference in the mean ratings of the responses of male and female students of agricultural education on the entrepreneurship skills required by youths for planning apiculture enterprise.

HO₂: There is no significant difference in the mean responses of male and female students of agricultural education on the entrepreneurship skills required by youths for managing apiculture enterprise.

HO₃: There is no significant difference in the mean ratings of the responses of male and female students of agricultural education on the entrepreneurship skills required by youths for preparing/harvesting honey.

HO₄: Significant difference does not exist between the mean responses of male and female agricultural education students on the entrepreneurship skills required by youths for processing honey.

3. Review of Related Literature

Apiculture is one of the major agricultural activities being upheld in recent times, so as to promote diversification in agriculture and reduce poverty. Apiculture is the science of beekeeping. It is the art and science of rearing, breeding and managing honeybee colonies in artificial hives for economic gains (Labe, 2017). Apiculture is the technique of scientific rearing of honey bees in a specially designed wooden box and without damaging the comb foundation extract honey and wax from their artificial hives (Akhaluola, 2011). The method of rearing bee for honey production is based on scientific facts that have been developed through the extensive studies of bee behaviour, bee biology, mode of reproduction, their functioning and management.

Management is the co-ordination of all resources of an organisation through the process of planning, organizing, directing and controlling so as to achieve pre-determined organizational objectives. It is the process of designing and maintaining an environment in which individuals working together in groups efficiently accomplish selected aims (Koontz and Weighrich, 2022). Management indeed, involves human and material resources thus, in apiculture, it entails the integration of human and material resources as a process of achieving and maintaining quality honey product through proper planning, management, harvesting and processing.

Planning is a deliberate attempt by apiculturist to take rational decisions concerning honey production occupation that will serve as a guide to the apiculturist to effectively utilize available resources to achieve set goals. Olaintan and Mama (2001) outlined the following planning activities: formulate specific objectives for honey production; identify major activities to be conducted in tandem with the objectives; decide on the sources of funding; revise the objectives periodically; decide on the technique to adopt in harvesting; identify the consumers; decide the scale of production; select appropriate tools, equipment for specific operation; select NAFDAC approved equipment, materials, resources for processing; packaging and storing honey; plan for procurement of apiculture inputs; decide how to dispose off honey waste products; and budget for the identified honey production activities.

After planning, organising and implementing farm operations, the next stage is management. It entails the integration of human and material resources of apiculture as a process of achieving and maintaining set objectives. Honey production management activities in apiculture includes: selection of good nesting site such as hollow trees, cavity, discarded cans, construction of removable comb hive with frame or top bars, provide clean adequate water nearby, provide sufficient pollen and nectar, clean human body free from smells of perspiration, alcohol, soap and perfume, wear clothes made from smooth fabric with light colour, when opening the hives always have some smoke at hand and always first blow some smoke into the flight entrance (Seegeren *et al.*, 2018). Other management activities include: lifting the cover to blow some smoke into the hive and close the hive again for about a minute; always have enough fuel for the smoke at hand; carry out all activities with slow movement; avoid banging against the hive; kill the bee first if you are stung by the bee and then scrape off the sting out of your skin with the finger nail or sharp object; to prevent insect pest attack, suspend the hive between two trees or poles with strong wire; paint the hive white to protect it against too much heat and treat the wood on the outside of the hive with a preservative (Koontz and Weighrich, 2022).

In preparation for honey harvest, Adamu (2014) outlined the following preparatory practices: through inspection of the bee colony; remove and kill the queen inclined to breed drone; unite the colony with a queen with a colony without a queen; clean thoroughly the hive floor that is covered with wax crumbs and sugar crystal; clean a loose bottom board; kill and burn diseased bees; clip off one of the queen's wings to prevent swarming; take the queen with clean hands by the thorax and carefully cut off half of one of the front wings; enlarge a colony for more honey through stimulating the increase of brood nest size; and prevent swarming in time.

According to Koontz and Weighrich (2022), honey harvesting can be successfully carried out using the following practices: reposition the combs outside the brood centre, a few days to the harvest; blow some smoke into the hives through the flight entrance; drive all the bees to one side of the hive with smoke and cut away the light coloured combs; place the combs you have cut off in a pot/bucket and close it; put combs with little or no capped honey into a separate container; and wait a while and then take the frame with capped honey out of the honey super and brush off the bees.

In the view of Seegeren *et al.* (2018) the harvested raw honey is transformed or converted into wholesome edible product known as processing. Therefore, the process of transforming raw harvested honey into wholesome edible honey is called processing. Adamu (2014) opined that harvested honey can be processed through the following measures: skin off floating foam and wax particles from the honey; scrape open the combs; break the combs into pieces and tie them up in a cloth; knead the combs in the cloth and press the honey through the cloth; separate processing of old combs; and use of centrifugal extraction. Other methods of processing honey include: process honey where bees cannot enter; add a table spoon of vinegar to a litre of clean water; put the combs in the clean water; if the honey contain too much water, dry the uncapped honey by making a chimney of the honey supers and blow air through them with ventilator, and place newspaper on the floor of the room to easily remove split honey.

From the foregoing therefore, the successful acquisition of the afore discussed entrepreneurship skills in planning, managing apiculture, preparing for honey harvest, harvesting honey and processing honey by the youths will equip them to be agripreneurs in honey production occupation.

4. Methodology

The study was conducted in Bayelsa State, Nigeria. The study adopted the descriptive survey design. The instrument for data collection was a 54-item questionnaire, structured on a 4-point response option of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with a corresponding numerical value of 4, 3, 2, and 1

respectively. The instrument was face-validated by three experts; Two Measurement and Evaluation Experts in the Department of Educational Foundations and One Agricultural Education Expert in the Department of Vocational and Technology Education, Faculty of Education, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria. Cronbach Alpha method was used to determine the internal consistency of the instrument, which yielded a reliability coefficient of 0.78.

The target population for the study comprised all the agricultural education students in the Department of Vocational and Technology Education, Faculty of Education, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria, in 2021/2022 academic session. There are 69 male and 81 female, totaling 150 agricultural education students in the Department. These 150 respondents (students) constituted the target population for the study. The entire 150 respondents were adopted as the sample for the study because of its manageable size, hence, the census sampling technique was adopted.

To ensure quality data collection, three (3) trained research assistants joined the researcher, totaling four (4) enumerators in each of the levels viz: 100 (year one), 200 (year two), 300 (year three) and 400 (year four) respectively. All the 150 copies of the questionnaire administered to the respondents were completely filled and returned, which were used for the analysis; representing 100% rate of return. The collated data were analyzed, using weighted mean while the t-test statistic was used for testing the null hypotheses at 0.05 level of significance. A cut-off value of 2.50 on the 4-point rating scale was used to interpret the result as Agree or Disagree. This implied that any apiculture item with a mean value of 2.50 to 2.49 was considered as Agree, while any item with a value of 0.5 to 2.49 was regarded as Disagree. Also, any item with a standard deviation between 0.00 and 1.96 revealed that the respondents were close to the mean and the opinion of one another, in which case, the item was adjudged valid. In testing the hypothesis, the study upheld hypothesis of no significant difference for item whose t-calculated value was less than the t-Table value at 0.05 level of significance with 148 degrees of freedom.

5. Results

The results were obtained based on the research questions answered and hypotheses tested.

5.1. Research Question 1

What are the entrepreneurship skills required by youths for planning apiculture enterprise?

HO₁: There is no significant difference in the mean ratings of the responses of male and female students of agricultural education on the entrepreneurship skills required by the students for planning apiculture.

Table-1. Mean ratings and t-test analysis of the mean responses of male and female students of agricultural education on the entrepreneurship skills required by the students for planning apiculture

Item No.	Apiculture planning skills	Male students		Female students		t-cal	Remarks
		\bar{X}_1	SD ₁	\bar{X}_2	SD ₂		
1.	Setting goals for honey production occupation.	2.62	1.19	2.68	1.33	0.29	NS
2.	Identify major activities to be carried out in line with production objectives.	3.83	0.37	3.82	0.65	0.11	NS
3.	Decide how to secure money for honey production and marketing.	3.08	0.87	3.11	0.93	0.18	NS
4.	Periodical revision of the objectives.	2.78	1.12	2.92	1.11	0.73	NS
5.	Identify customers for honey to be produced.	3.60	1.03	3.29	0.82	1.91	NS
6.	Decide on the techniques to adopt on the apiculture practices.	3.32	0.73	3.20	0.95	0.81	NS
7.	Determine the scale of production.	3.08	0.87	3.11	0.93	0.18	NS
8.	Selection of appropriate equipment for specific operation.	3.1	0.94	3.38	0.69	1.68	NS
9.	Select NAFDAC approved equipment, tools and materials for processing, packaging and storage of honey product.	2.98	0.93	2.97	0.85	0.11	NS
10.	Decide how to dispose off honey waste products.	3.63	0.71	3.57	0.69	0.57	NS
11.	Budget for all the identified activities for honey production occupation.	3.1	0.87	3.40	0.69	1.66	NS

Key: \bar{X} = Mean; SD = Standard Deviation; t-cal = Calculated t-value; t-tab = Tabulated t-value 1.96; DF = Degree of Freedom 148; NS = Not Significant; S= Significant

Data presented in Table 1 revealed that all the eleven (11) planning skills (items) had their mean (\bar{X}) values ranged from 2.62 to 3.83 and were all above the cut-off point of 2.50. They are, therefore interpreted as agreed. This implied that all the respondents agreed that the 11 statements were entrepreneurship skills required for planning apiculture enterprise. The standard deviation values ranged between 0.37 to 1.19 which were below 1.96, indicating that the respondents were close to one another in their responses; meaning that the statements were valid.

Table 1 shows further that all the 11 statements had their calculated t-values ranged from 0.11 to 1.91 which were less than the tabulated t-value of 1.96 with degrees of freedom of 0.05 level of significance. This implied that there was no significant difference in the mean ratings of male and female students of agricultural education on the entrepreneurship skills required by the students for planning apiculture. The postulated null hypothesis of no significant difference was therefore, upheld for all the eleven (11) items.

5.2. Research Question 2

What are the entrepreneurship skills required by youths for managing apiculture enterprise?

HO₂: There is no significant difference in the mean responses of male and female students of agricultural education on the entrepreneurship skills required by youths for apiculture enterprise management.

Table-2. Mean ratings and t-test analysis of the mean responses of male and female students of agricultural education on the entrepreneurship skills required by youths for apiculture enterprise management

Item No.	Apiculture Management Skills	Male Students		Female Students		t-cal	Remarks
		\bar{X}_1	SD ₁	\bar{X}_2	SD ₂		
1.	Select good nesting site such as cavity, hollow trees, discarded cans.	3.38	0.49	3.29	0.71	0.90	NS
2.	Construct removable comb hive with frame or top bars.	3.68	4.47	3.68	0.47	0.09	NS
3.	Provision of adequate water nearby.	3.23	0.98	3.12	0.95	0.95	NS
4.	Provision of sufficient source of pollen and nectar.	3.08	0.87	3.11	0.93	0.18	NS
5.	Bee keeper be free from smells of perspiration, alcohol, soap and perfume.	3.60	0.81	3.53	0.89	0.47	NS
6.	Wear clothes made from smooth fabric with lightest colour.	3.20	0.76	3.19	0.62	0.09	NS
7.	Always have some smoke at hand when opening the hives.	3.79	0.42	3.78	0.59	0.32	NS
8.	Always first blow smoke into the flight entrance.	3.75	0.44	3.78	0.76	1.38	NS
9.	Then lift the cover, blow some smoke into the hive and close the hive again for about one minute.	3.08	0.87	3.11	0.93	0.18	NS
10.	Always have enough fuel for the smoker at hand.	3.60	0.81	3.53	0.87	0.47	NS
11.	Carry out all activities with slow movement.	3.38	0.49	3.29	0.71	0.96	NS
12.	Avoid banging against the hive.	3.79	0.42	3.78	0.59	0.32	NS
13.	If one is stung by bee, first kill the bee and then scrape off the sting out of your skin with the finger nail or sharp object.	3.68	4.47	3.68	0.47	0.07	NS
14.	The hive is suspended between two trees or poles with strong wire so as to prevent insect pests attack.	3.23	0.98	3.12	0.95	0.93	NS
15.	The hive is painted white to protect the hive against too much heat.	2.73	1.12	2.92	1.11	0.75	NS
16.	Treat the wood on the outside of the hive with a preservative.	3.38	0.49	3.29	0.71	0.90	NS

Key: \bar{X} = Mean; SD = Standard Deviation; t-cal = Calculated t-value; t-tab = Tabulated t-value 1.96; DF = Degree of Freedom 148; NS = Not Significant; S= Significant.

Data presented in Table 2 shows that all the sixteen (16) items had their mean (\bar{X}) values ranged from 2.73 to 3.79 and were all above the criterion level of 2.50. Hence, they are interpreted as agreed. This implies that all the respondents agreed that the sixteen (16) statements were entrepreneurship skills required by youth for managing apiculture enterprise. The standard deviation values ranged from 0.42 to 1.12, which were below 1.96, indicating that the respondents were close to one another in their responses; meaning that the items were valid.

Table 2 further revealed that all the sixteen statements had their calculated t-values ranged from 0.06 to 0.95, which were less than the tabulated t-values of 1.96, with 148 degrees of freedom at 0.05 level of significance. This therefore, implied that there was no significant difference in the mean ratings of male and female agricultural education students on the entrepreneurship skills required by youths for managing apiculture enterprise. Thus, the postulated null hypothesis of no significant difference was maintained for all the 16 items.

5.3. Research Question 3

What are the entrepreneurship skills required by youths for preparing honey harvest and harvesting honey?

HO₃: There is no significant difference in the mean ratings of the responses of male and female students of agricultural education on the entrepreneurship skills required by youths for preparing/harvesting honey.

Table-3 Mean ratings and t-test analysis of the mean responses of male and female students of agricultural education on entrepreneurship skills required by youths for preparing honey harvest and harvesting honey

Item No.	Preparation skills for Honey Harvest.	Male Students		Female Students		t-cal	Remarks
		\bar{X}_1	SD ₁	\bar{X}_2	SD ₂		
1.	Thorough inspection of the bee colony.	3.32	0.73	3.20	0.95	0.81	NS
2.	Removal and killing the queen inclined to breed drone.	2.52	1.24	2.39	1.29	0.34	NS
3.	Uniting a colony without a queen with a colony with a queen.	3.10	0.94	3.38	0.69	1.68	NS
4.	Killing and burning diseased bees.	2.98	1.09	2.08	1.08	0.52	NS
5.	Cleaning of the hive floor that is covered with wax crumbs and sugar crystal.	3.18	0.87	3.40	0.69	1.68	NS
6.	Clean a loose bottom board.	3.63	0.87	3.40	0.69	1.68	NS
7.	Clipping off one of the queen’s wings to prevent swarming.	2.98	0.93	2.97	0.85	0.11	NS
8.	With clean hands, take the queen by the thorax and carefully cut-off half of one of the front wings.	3.60	1.03	3.29	0.82	1.11	NS
9.	Enlarging a colony for more honey through stimulating the increase of brood nest size.	3.63	0.71	3.59	0.69	0.57	NS
10.	Prevention of swarming in time.	2.63	1.20	2.69	1.33	0.30	NS
Honey Harvesting Skills							
11.	Reposition the combs outside the brood centre, a few days to harvest.	3.10	0.94	3.38	0.69	1.68	NS
12.	Blow some smoke into the hives through the flight entrance.	3.32	0.73	3.20	0.95	0.81	NS
13.	Drive all the bees to one side of the hive with smoke, and cut away the light-coloured combs.	2.52	1.24	2.39	1.29	0.34	NS
14.	Place the combs you have cut off in a pot/bucket and close it.	2.98	1.09	2.08	1.08	0.52	NS
15.	Put combs with little or no capped honey into a separate container.	3.18	0.87	3.40	0.69	1.68	NS
16.	Wait a while and then take the frame with capped honey out of the honey super and brush off the bees.	3.60	0.81	3.53	0.89	0.47	NS

Key: \bar{X} = Mean; SD = Standard Deviation; t-cal = Calculated t-value; t-tab = Tabulated t-value 1.96; DF = Degree of Freedom 148; NS = Not Significant; S= Significant.

Data presented in Table 3 revealed that all the ten (10) statements had their mean values ranged from 2.52 to 3.63 and were all above the cut-off point of 2.50. They are therefore, interpreted as agreed. This implies that all the respondents agreed that the ten (10) statements were entrepreneurship skills required by youths for preparing honey harvesting. Similarly, items 11-16 had their mean values ranged from 2.52 to 3.63 and were all above the cut-off point of 2.50. The standard deviation values ranged from 0.42 to 1.12, which were below 1.96, Thus, they are interpreted as agreed. This implies that all the respondents agreed that the six (6) statements were entrepreneurship skills required by youths for harvesting honey. The standard deviation values ranged between 0.71 and 1.24 which were below 1.96, indicating that the respondents were close to one another in their responses; meaning that the items were valid.

Table 3 further shows that all the sixteen statements had their calculated t-values ranged from 0.06 to 0.95, which were less than the tabulated t-values of 1.96, with 148 degrees of freedom at 0.05 level of significance. This therefore, implied that there was no significant difference in the mean responses of male and female students of

agricultural education on entrepreneurship skills required by youths for preparing honey harvest and harvesting honey. Thus, the postulated null hypothesis of no significant difference was, upheld for all the sixteen (16) items.

5.4. Research Question 4

What are the entrepreneurship skills required by youths for processing honey?

HO₄: Significant difference does not exist between the mean responses of male and female agricultural education students on the entrepreneurship skills required by youths for processing honey.

Table-4. Mean ratings and t-test analysis of the mean responses of male and female students of agricultural education on the entrepreneurship skills required by youths for processing honey

Item No.	Honey processing skills	Male Students		Female Students		t-cal	Remarks
		\bar{X}_1	SD ₁	\bar{X}_2	SD ₂		
1.	Skimming off floating foam and wax particles from the honey.	3.60	1.03	3.29	0.82	1.91	NS
2.	Scrape open the combs	3.10	0.94	3.38	0.69	1.68	NS
3.	Break the combs into pieces and tie them up in a cloth.	2.78	1.12	2.92	1.11	0.73	NS
4.	Knead the combs in the cloth and press the honey through the cloth.	3.08	0.87	3.11	0.93	0.18	NS
5.	Use of centrifugal extractor	3.38	0.49	3.29	0.71	0.90	NS
6.	Separate processing of old combs.	3.20	0.76	3.19	0.62	0.06	NS
7.	Add a Tablespoon of vinegar to a litre of clean water.	3.60	0.81	3.53	0.89	0.47	NS
8.	Put the combs in the clean water.	2.73	1.12	2.92	1.11	0.75	NS
9.	Honey is processed in a space where bees cannot enter.	3.68	0.47	3.68	0.47	0.07	NS
10.	If the honey contains too much water, dry the uncapped honey by making a chimney of the honey supers and blow air through them with ventilator.	3.18	0.87	3.40	0.69	1.68	NS
11.	Place newspaper on the floor of the room to easily remove split honey.	2.98	1.09	2.08	1.08	0.52	NS

Key: \bar{X} = Mean; SD = Standard Deviation; t-cal = Calculated t-value; t-tab = Tabulated t-value 1.96; DF = Degree of Freedom 148; NS = Not Significant; S= Significant.

Data presented in Table 4 shows that all the eleven (11) statements had their mean values ranged from 2.73 to 3.79 and were all above the criterion level of 2.50. Hence, they are interpreted as agreed. This implies that all the respondents agreed that the eleven (11) statements were entrepreneurship skills required by youths for processing honey. The standard deviation values ranged from 0.49 to 1.12, which were below 1.96, indicating that the respondents were close to one another in their responses; meaning that the items were valid.

Table 4 further revealed that all the eleven (11) statements had their calculated t-values ranged between 0.07 and 1.91, which were less than the tabulated t-values of 1.96, with 148 degrees of freedom at 0.05 level of significance. Therefore, this implied that there was no significant difference in the mean ratings of the responses of male and female agricultural education students on the entrepreneurship skills required by youths for processing honey. The postulated null hypothesis of no significant difference was therefore, upheld for all the eleven (11) items.

6. Discussion of Findings

The discussion of the findings of the study followed the order of the research questions. From the analysis of the data in Table 1, the study identified eleven (11) entrepreneurship skills required by youths for planning apiculture enterprise. These identified apiculture planning skills in Table 1, are in consonance with the report given by Akhaluola (2011) who advised youths intending to engage in apiculture to have strategic planning through goal setting, identification of major operations, securing funds, market determination, choosing appropriate technologies, waste management strategy and budgeting for the honey occupation. The findings of the study in Table 1 further revealed that there was no significant difference in the mean ratings of the responses of male and female students of agricultural education on the entrepreneurship skills required for planning apiculture enterprise. The findings of this study is in line with the view of Adamu (2014) who averred that male and female students opinion on entrepreneurship skills required for planning apiculture enterprise are one and the same.

The findings of the study in Table 2 revealed the following entrepreneurship skills required by youths for managing apiculture enterprise: selection of good nesting site, construction of removable comb hive, adequate water supply, provision of source of pollen and nectar, absence of smells of alcohol, soap, perfume and perspiration, wear light coloured clothes made from smooth fabric, handy with smoke when opening the hives, having enough fuel for the smoke at hand, carrying out all activities with slow movement, avoid banging against the hives, kill and scrape

off the sting out of your skin with finger when stung by bee, painting the hive with white to protect the hive against too much heat, and treat wood on the outside of the hive with a preservative.

The findings of the study is in tandem with the views of Ashmore (2005) who stated that the productivity of apiculture, to a large extent, hinges on good management. Hence Ndu (2010) advocated for provision of adequate water supply and pollen/nectar with a slow movement devoid of smells of alcohol, soap or perfume. The findings of the study in Table 2 further shows that there was no significant difference in the mean ratings of the responses of male and female students of agricultural education on the entrepreneurship skills required by youths for managing apiculture. The findings of this study is in agreement with the report of Okorie (2000) who opined that boys and girls who study in same school setting and environment usually acquire the same entrepreneurship skills required for apiculture management, hence no significant difference.

The findings of the study in Table 3 identified ten (10) preparatory skills for honey harvest and six (6) skills for harvesting honey. The findings of this study is in consonance with the works of Olaitan *et al.* (2000) who expounded: through inspection of the bee colony, removal and killing queen inclined to breed drone, killing and burning diseased bees, cleaning hive floor and loose bottom board, clippe off one of the queen's wings to prevent swarming, cut off half of one of the front wings, stimulating the increase of brood nest size for more honey, repositioning the combs outside the brood centre, blow smoke into the hives through the flight entrance, drive all the bees to one side of the hive with smoke and cut off the light coloured combs, place the cut-off combs in a pot/bucket and close, put combs with little or no capped honey into a separate container, take the frame with capped honey out of the honey super and brush off the bees. Furthermore, the findings of the study in Table 3 revealed that there was no significant difference in the mean ratings of the responses of male and female students of agricultural education on the entrepreneurship skills required by youths for preparation/harvesting honey. The findings of this study confirm the opinion of Uduma (2004) who stated that the perception of male and female students are synonymous since their teaching and learning environment is the same.

The findings of the study in Table 4 identified eleven entrepreneurship skills required by youths for processing honey. The findings of this study is in line with the submission of Seegeren *et al.* (1991) who advocated the following technologies in processing honey: skimming off floating foam and wax particules, scrape open the combs, breaking combs into pieces and tie them up in a cloth, kneading combs in the cloth and press the honey, centrifugal extraction, add a tablespoon of vinegar to a litre of clean water, processing honey in a space where bees cannot enter, dry the uncapped honey that has too much water, place newspaper on the floor to easily remove split honey. Hence Osinem and Nwoji (2005) averred that the quality of honey, to a large extent, depends on the methodology used in processing. Farmers are therefore, advised to adopt the best technology in honey processing so as to retain its nutritional and therapeutic values. The findings of the study in Table 4 revealed further that there was no significant difference in the mean responses of male and female students of agricultural education on the entrepreneurship skills required by youths for processing honey. The findings of this study is in harmony with the report of Ndu (2010) who asserted that there is no disparity between male and female students on the entrepreneurship skills required for processing honey, hence significant difference seldom exist between boys and girls in skills required because both sexes require the same entrepreneurship skills for processing honey. The findings of the researchers cited above corroborates the findings of this study and had further improved the validity and reliability of the results.

7. Conclusion

At present many youths find it difficult to run their apiculture business to make profit due to lack of entrepreneurship skills. In order to bridge the gap and provide the entrepreneurship skills in honey production, the study investigated and identified eleven (11) apiculture planning skills, sixteen (16) apiculture management skills, ten (10) preparatory skills for harvesting honey, six (6) skills for harvesting honey and eleven (11) skills for processing honey. There was no significant difference in the mean ratings of the responses of male and female students of agricultural education on the skills required for honey production. Therefore, if the findings of this study are developed into a training manual and packaged for students, youths, agribusiness tycoons and ministry of agriculture and natural resources, it will equip youth's entrepreneurship skills in honey production and create employment opportunities and ultimately improve the standard of living of the citizenry.

Recommendations

Based on its findings and conclusion, the study recommends that:

1. Lecturers should redouble their efforts to equip students with entrepreneurship skills in apiculture enterprise.
2. State government should assist graduates of agricultural education with starter packs to enable them venture into apiculture business.
3. Extension workers should train youths on honey production occupation.
4. Government should intensify campaigns to encourage youths into honey production occupation.

References

- Adamu, S. G., 2014. "Nigeria apicultural sustainability-opportunities and challenges." In *An invited country position paper, for the API-EXPO AFRICA, 6th – 11th October, 2014. Harare-Zimbabwe.*
- Akhaluola, F. C. (2011). Introductory bee biology and beekeeping in Nigeria. Gusau: 01-faith prints.
- Ashmore, K. (2005). Consortium for entrepreneurship education. Available: <http://www.entre-ed.org>
- Ekiyor, C. W. (2006). *Bayelsa paradise revealed.* Yenagoa Government press: Bayelsa Handbook.

- Koontz, O. S. and Weighrich, T. C. (2022). *Management. A global perspective*. Taka McGraw: New York.
- Labe, T. E. (2017). Prospect and challenges of apiculture business in Nigeria: A review. *Journal of Research in Forestry Wildlife and Environment*, 9(2): 83-91.
- Ndu, A. U. (2010). Women and agricultural entrepreneurial skill. *Bichi Journal of Education*, 10(2): 29-38.
- Okorie, J. U. (2000). *Developing Nigeria workforce*. Menky Environs Publishers: Calabar.
- Olaintan, S. O. and Mama, R. O. (2001). *Principles and practice of school farm management*. Cape Publishers Int'l Ltd: Owerri.
- Olaitan, S. O., Ali, E., Onyemachi, G. A. and Nwachukwu, C. (2000). *Poverty and Poverty alleviation initiatives in Nigeria*. Nigeria Education Research Association: Nsukka.
- Osinem, E. C. and Nwoji, U. (2005). *Students industrial work experience in Nigeria: Concepts, principles and practice*. Cheston Agency Ltd: Enugu.
- Seegeren, P., Mulder, V., Beetsma, J. and Sommeijer, R. (1991). *Beekeeping in the tropics*. CTA. Wageningen, Netherland.
- Seegeren, P., Mulder, V., Beetsman, J. and Sommeijer, R. (2018). *Beeking in the tropics*.
- Uduma, M. K. (2004). *An introduction to entrepreneurship in vocational agricultural education in Nigeria*. Sogar Printers (Nig): Ogoja: .
- Uzoagulu, A. E. (1997). Technology exploration by youths. A diversionary strategy for conflict resolution in the home. *Nigerian Education Journal*, 1(1): 8-15.