Journal of Centre for Technical Vocational Education, Training and Research (JOCETVETAR) Vol.3 No.2: December 2018

QUALITY APPRENTICESHIP IN PINEAPPLE PRODUCTION FOR ENHANCING EMPLOYMENT OPPORTUNITIES OF YOUTH IN AWGU LOCAL GOVERNMENT AREA OF ENUGU STATE NIGERIA.

[1]Egbo, B.N., [2]Aneke, C.U. & [3]Nwankwo, C.U.

*[1]Department of Agricultural Education, College of Education Technical, Enugu.

**[2]Department of Technology and Vocational Education, Enugu State University of Science and Technology, Enugu.

***[3]Department of Agricultural Education, University of Nigeria, Nsukka.

Abstract

The study was carried out to determine the activities of trainers and trainees in quality apprenticeship system of pineapple production for enhancing employment opportunities of youth in Awgu Local Government Area of Enugu State. Two research questions and two null hypothesis guided the study. The study adopted survey research design and was carried out in Awgu Local Government Area of Enugu State. The population for the study was 167 made up of 46 youths, 40 extension agents and 81 farmers from which 121 were studied. Two sets of structured questionnaire with 40 (set A 29 and B 11) items developed from the literature received for the study were used for collecting data. Each item in the questionnaire was assigned a four response options for Highly Required (HR), Averagely Required (AR), slightly Required (SR) and Not Required (NR) with values of 4, 3, 2 and 1 respectively. The structured questionnaire items were face-validated by three experts while Cronbach alpha method was used to determine the internal consistency of the items and an average coefficient of 0.80 was obtained (0.87 and 0.73 for 1 & 2 respectively). The questionnaire was administered on 121 respondents (81 farmers and 40 extension agents) with the help of five assistants. Out of 121 copies of questionnaire administered, 120 (80 farmers & 40 extension agents) copies were retrieved and analyzed weighted means was used to answer the research questions while t-test was used to test the null hypotheses at the probability of .05 and 28 degrees of freedom. The study found out that 40 (29 for trainers and 11 for trainees) items were activities identified by the study of required for quality apprenticeship system. It was recommended that the identified 40 items be utilized by trainers and trainees for quality apprenticeship system in pineapple production in Awgu Local Government Area of Enugu State.

***Keywords**: Apprenticeship, Pineapple, Improvement, Suckers, Crown, Slip*

Introduction

Many people are interested in pineapple and its products due to the sweet taste and inherent health benefits. Pineapple (*Ananascosmus*) is a monocotperennial herbaceous plant with auto-sterile-fruit developed from aggregate of inflorescence situated at the tip portion of the stem (David in Asouzu, 2010 and Singh 2015). The plant belongs to the family of Bromeliaceae, characterized by producing compound fruits formed by fusion of the

parthenocarpic fruitless with bract and 100-200 berries fused together on a central axis or core which is the continuation of fibrous peduncle (Yayook Lombin & Owonubi 1996, Ugwoke & Ejiofor 2010).

Pineapple can be multiplied vegetatively as a result of many propagating parts such as suckers, slips, crowns, and discs. Suckers are shoots produced from the axils of leaves, slips are shoots which emerge from the fruit stock; crowns are bunch of leaves on the top of the fruit which the discs are stems that are divided into small bits containing 2-3 buds to enhance germination (Mayhew & Anne 1996). The plant has spreading leaves which gives it a russet appearance with a single fruit on peduncle protruding out from the russet. The plant attains a height of 80-100cm at fruiting stage and fruits at 15-22 months (Singh 2015 & Joy 2016).

Pineapple grown from suckers produce fruits in 15-18 months whereas slips, discs and crown take up to 2022 months. For suckers and slips to perform well, they are cured by stripping off the lower leaves and drying in the sun for about 1 week or in partial shade for 2-3 days before planting. Drying and curing also helps to prevent rotting of plants after plating (Joy 2016).

Pineapple are grown over a wide range of temperature and annual rainfall of 600mm in the tropic (Portia, Olivia, Christopher & George 2017). Some varieties are grown in cool climate but majority of the plant are not sweet if the temperature falls below 25^0C while growth reduces rapidly at < 15^0C> than 30^0C with sun burn likely to occur at 32^0C (Mayhew & Anne 1996)

Schulze & Maharaj, 2017). The plant requires PH range of 4.5-5 with optimum growth in well drained sandy loan of PH 4.5-6.5 (Asouzu, 2010). Well drained soil, rich in organic manure is descrambling (Ugwoke & Ejiofor 2010).

People prefer sweet cultivars like Cayannes (giant) and Queen because of less thorns (Cayennes) with prolong shelf-like (queens) and both have high nutritional contents. The nutritional contents of pineapple fruit include poromelin which aids protein digestion and Vitamins A, B and C which are required for healthy living (Shu 1999; Singh, 2015). The fruit is very rich in minerals like iron, calcium and phosphorus required for strong bones and activation function of red blood cells. The fresh fruit are used for table purpose or canned for export. The residues from canning are used as fodders either through drying of waste or silage preparation. The fibres of leaves of certain cultivars are used in textile industries (Shu ,1999). Due to the importance of pineapple, many farmers engaged in its production.

Production is the use of factors such as capital, labour, land and management to create output from raw materials (Onoh, 2015). It is a process of changing, transforming input into useful output (products). In this study production is the process by which farmers utilize available resources such as capital, labour, land and management indices to transform (grow) suckers, by crowns slips or discs to large quantity of edible fruits to meet up with the

demand of pineapple by consumers. For the quantity of pineapple fruit to be produced in a larger quantity the technical skills of producers need to be improved. Improvement is a means of enhancement of situation from lower state to meet the targeted goal and satisfaction from lower level (Ifeanyieze, 2010). Improvement is a means of adding quality to unsatisfied in order to derive satisfaction (Aneke, 2015). The improvement strategy in enhancing pineapple production required that trainers organize quality apprenticeship.

Apprenticeship is a method of training whereby a skilled worker passes on craft knowledge to another. Apprenticeship according to Azita (2017) is a systematic long-term training for a recognised occupation taking place substantially within an undertaking or under an independent craftsman governed by a written contract subject to established standards. Quality apprenticeship according to the author is a unique form of technical vocational education and training, combining on –the-job training and off-the-job learning to enable learners from all walks of life acquires required competences for job. In the view of National Apprenticeship Service (NAS, 2018), apprenticeship is the transfer of knowledge, skills and attitudes in an identified job to an inexperienced individual through a master in which the apprentice is indentured (contracted) to the master for a specified period of years. The author further defined apprenticeship system as a training strategy that prepares people for skilled employment by conducting training in bona fide and documented employment settings in which the content of training, both on-the-job and related instruction, is defined by the trainer/industry. Apprenticeship, the author further stated combines practical training in a job with study, meaning that an apprentice works alongside experienced staff to gain job-specific skills. In this study, apprenticeship is the transfer of knowledge, skills and attitudes in pineapple production to inexperienced youth by the farmers in Awgu Local Government Areas of Enugu State.

In Awgu Local Government Area of Enugu State, the researchers observed that there is scarcity and increase in the cost of pineapple as five hundred naira (N500) worth of the fruit in the market cannot be enough for a family of five. The major producers of pineapple are women constituting about 83% of the farmers. These farmers create opportunity for youth to register for apprenticeship in order to enhance production and reduce youth unemployment. The interaction of the researchers with some of the youth that has completed the training indicated that they find it difficult to produce pineapple in large quantity as expected because the master-trainers (pineapple farmers) do not have systematic training procedure leading to inability of trainers to perform up to expectation. The inability of the trained to perform up to expectation, deter other interested unemployed idle youth from participating. According to the interview carried out by the researchers with these youth, they are interested in entering into the pineapple apprenticeship training if the system is improved. This in addition to enhancing the availability of the pineapple in the market could help the youth to be busy and keep off from social vices rampant in the country. Ebomuche and Okezie (2010) stated that about 8 million graduates of tertiary institutions are operating on social vices like armed robbery, political touts, kidnapping, 419 and yahoo, yahoo and other crimes due to poverty and unavailability of meaningful job. Unuigbe, (2013) averred that

there is urgent need to tackle the increasing youth unemployment rate, which has in turn contributed to the insecurity situation rocking the country. An improved quality apprenticeship system is therefore needed in order to improve pineapple production in Awgu Local Government. The purpose of this study was to determine quality apprenticeship system for youth in pineapple production for economic enhancement in Awgu Local Government Area. Specifically, the study sought to determine;

1. The activities of trainers for quality apprenticeship of youth in pineapple production for economic enhancement.
2. Trainees (Youths) activities in improving quality apprenticeship- pineapple production for economic enhancement in Awgu Local Government Area.

Methodology

The study adopted descriptive survey research design and was carried out in Awgu Local Government Area of Enugu State. Awgu Local Government has 20 communities which are Agbogugu, Agbudu-Uga, Amoli, Agwu, Agwu-Nta, Ezere, Ihe, Isu-awa, Ituku, Nmaku, Mgbidi, Mgbowo, Nkem, Nkwe, Nnen-wenta, Obeagu, Ogbaku, Oweli, Ugbo, Ogugu. The producers of pineapple in these 20 communities are mainly Amoli. Agbuel-Uga and Nnen-wenta. The varieties of pineapple mostly grown in these three communities are MD12, Queen and Cayannes. The communities have the required climate condition suitable soil type with required pH levels.

The population for the study was 167 made up of 46 youth (to whom the study is meant for); 40 extension agents and 81 farmers registered with Enugu State Agricultural Development Project, (ADP). These farmers were from the three communities that produce pineapple (Amoli 45; Agbudu-Uga 12 and Nnen-wenta 23); the population of extension agents and farmers was obtained from Agricultural Development Project (ADP) 2018 while that of youth was obtained from the Age Grade Nominal role (2018). The youth did not respond to the questions as the research work is on their interest and they are not experienced to provide dependable answers to the research questions, therefore, there was no sampling due to the manageable size of the population.

Two sets of structured questionnaire with 40 (set A 29 & B 11) items developed from literature reviewed for the study was used for collecting data. Each item in the questionnaire was assigned a four response options of Highly Required (HR), Average Required (AR), Slightly Required (SR) and Not Required (NR) with values 4, 3, 2 and 1 respectively. The structured questionnaire items were face-validated by three experts while Cronbach alpha method was used to determine the internal consistency of the questionnaire items and an average coefficient of 0.8 was obtained (0.87 and 0.73 for 1 & 2 respectively).

The questionnaire was administered on 167 respondents (127 farmers & 40 extension agents) with the help of five assistants who were selected based on their familiarity with the study area. Prior to the assignment, the assistants were instructed on how to administer and retrieve the copies of the questionnaire. They were instructed to administer the questionnaire to specific respondent based on the set (set A to farmers & set B to extension agents). Out of 121 copies

of questionnaire administered, 120 (80 farmers & 40 extension agents) copies were retrieved and analysed.

Weighted means was used to answer the research questions while t-test was used to test the null hypothesis at the probability of 0.05 and 118 degree of freedom. To take decision on the research question, real limit of number was used which were highly required HR 3.50-4.00 averagely Required AR 2.50 – 3.49, Slightly Required SR 1.50- 2.49, Not Required NR 0.50-1.49 any item with a weighted mean (X) value of 1.50 or above was interpreted as required while any item with a mean value less than 1.50 was not required. The null hypothesis tested was upheld for any item that had its significant level greater than 0.05 and not upheld if otherwise.

Results: The results of the study were obtained from the research questions answered and hypotheses

tested and presented in Tables 1&2

Research Questions 1 What are the activities of the trainer for quality apprenticeship system in pineapple production in Awgu Local Government Area

Data for answering research question one were

presented in table 1

Table 1: Mean Rating and T-test statistics of two production in Awgu Local Government Area. groups of respondents on activities of the trainer ~~N~~= 120 (80 farmers & 40 extension agents).

of quality apprenticeship system in pineapple

S/N	*ACTIVITIES OF TRAINERS*	X_F	SD_F	X_E	SD_E	X_G	SD_G	*T-CAL*	*RMRK*
1	Organize training programme	2.51	0.43	2.50	0.41	2.50	0.42	1.20	*NS
2	Select training materials / tools and equipment for pineapple	2.68	0.49	2.66	0.45	2.67	0.47	1.32	*NS
3	Expose apprenticeship to areas relevant to their training in pineapple production	2.57	0.10	2.49	0.30	2.53	0.20	2.11	*NS
4	Prepare tasks analysis sheet	3.15	0.96	3.07	1.02	3.11	0.99	0.39	*NS
5	Instruct apprentice on procedure to follow using the task analysis sheet	3.22	0.94	3.18	1.02	3.20	0.98	0.36	*NS
6	Select suitable site bearing in mind of well drained soil with pH 4.5-6.5		3.20	1.31	3.26	1.27	3.23	1.29	0.72 *NS
7	Expose trainee to selection of good suckers, crowns, slips or discs		3.31	1.06	3.37	1.18	3.34	1.12	0.55 *NS
8	Carryout pre-planting operations like clearing, tillage	2.55	0.30	2.51	0.38	2.53	0.34	0.34	*NS
9	Expose apprentice on soil fumigation	2.84	0.55	2.94	0.63	2.89	0.59	0.37	*NS
10	Demonstrate on removal of dry and weak leaflets	2.99	0.86	2.95	0.90	2.97	0.88	1.00	*NS
11	Sun-dry for few days	2.74	0.84	2.78	0.90	2.76	0.87	0.16	*NS

12	explain spacing (30-60cm apart for single and 30cm for double) row	3.25	1.00	3.19	1.04	3.22	1.02	1.15	*NS
13	Plant the crop for apprentice to observe	3.35	1.04	3.27	1.14	3.31	1.09	2.10	*NS
14	Explain the best month for planting (March/ April-September)	0.06	*NS	3.49	1.15	3.45	1.07	3.47	1.11	-
15	Prepare chemicals for dipping planting materials for apprentice to observe	2.52	0.16	2.60	0.06	2.56	0.11	0.09	*NS
16	Deep the planting materials into 0.1% diazinion diluted with 4.5ml of water	3.16	0.09	3.04	0.97	3.10	0.98	0.51	*NS
17	Apply fertilizer (muriate of potash at 114kg/ha) adopting appropriate method with right dosage	3.41	1.25	3.49	1.17	3.45	1.21	1.21	*NS
18	Treat the plant to enhance flowering by using NNA, with 10-15PPM solution and Ethrel of 100PPM at 40 leaf stage for 20 minutes	3.54	1.35	3.60	1.39	3.57	1.32	1.37	*NS
19	Apply artificial flowering treatment using NNA in 10-15PPM solution	3.56	1.00	3.50	1.02	3.53	1.01	1.01	*NS
20	Harvest pineapple at the right time (when angulated of eyes start reducing and withering)	2.91	0.42	2.99	0.48	2.95	0.45	0.45	*NS
21	Assign duties to apprentice after repeated observation during demonstration	2.54	0.10	2.62	0.08	2.58	0.09	0.10	*NS
22	The apprentice to utilize appropriate tools and equipment during practice	2.69	0.22	2.59	0.28	2.64	0.25	0.25	*NS
23	Monitor and supervise apprentice as they practice.	3.44	1.16	3.54	1.20	3.49	1.18	1.18	*NS
24	Assign fast learners to work with slow learners	3.76	1.02	3.68	1.08	3.72	1.05	1.05	*NS
25	Assess apprentice bit by bit on each task performed	3.25	1.01	3.19	1.03	3.22	1.02	1.02	*NS
26	Change training method if need be	2.75	0.45	2.67	0.37	2.71	0.41	0.41	*NS
27	Keep record of attendance	3.16	1.13	3.08	1.17	3.12	1.15	1.15	*NS
28	Keep record of apprentice performance	3.76	1.00	3.68	1.06	3.72	1.03	1.03	*NS

Data presented in Table 1 on the activities of the trainer for quality apprenticeship system in pineapple production revealed that all the 28 items has their grand mean (X) values ranged from 2.50-3.71. These values were within 1.50-4.00, indicating that the 29 items were activities of the trainer of quality apprenticeship system in pineapple production. The table also revealed that the grand standard deviation (SD) of the 28 items ranged from 0.09- 1.42, which were 1.96. This indicated that the respondents were not too far from the mean and from one another in their responses thereby confirming the validity of the items.

Furthermore, all the 28 items have their t-calculated values greater than 0.05. This indicated that there was no significant difference in the mean ratings of the two groups of respondent on the activities of the trainer for quality apprenticeship system in pineapple production. Therefore, the null hypothesis of no significant difference was accepted for each of the 28 items.

Research Questions 2

What are trainees (Youth) activities in improving quality apprenticeship –pineapple production for economic enhancement in Awgu Local Government Area

Data for answering research question two were

presented in Table 2

Table 2: Means Rating and T-test statistics of two groups of respondents on trainee activities for quality apprenticeship system in pineapple production in Awgu LOCAL Government Area. N = 120 (80 farmers & 40 extension agents).

S/N	*ACTIVITIES OF TRAINERS*	X_F	SD_F	X_E	SD_E	X_G	SD_G	*T-CAL*	*RMRK*
1	Pay necessary fee for agreement	3.32	0.60	3.60	0.81	3.46	0.81	0.36	*NS
2	Purchase necessary tools for the training	2.22	1.07	2.22	1.07	2.22	1.07	1.01	*NS
3	Start the training at agreed date and time	3.17	0.32	3.17	0.32	3.17	0.32	1.06	*NS
4	Be punctual to the training venue	2.38	1.02	2.38	1.02	2.38	1.02	1.05	*NS
5	Observe trainers as they select materials for pineapple production	2.99	0.50	2.99	0.50	2.99	0.50	1.15	*NS
6	Watch trainers demonstrate the skills	3.81	1.05	3.81	1.05	3.81	1.05	0.16	*NS
7	Ask questions where necessary through effective communication and feedback	2.72	1.31	2.72	1.31	2.72	1.31	0.11	*NS
8	Practice tasks and activities demonstrated by the trainers	2.51	0.86	2.51	0.86	2.51	0.86	0.75	*NS
9	Clarify issues not adequately comprehended	3.42	0.52	3.42	0.52	3.42	0.52	0.53	*NS
10	Adopt the practice on graduation	2.36	0.33	2.36	0.33	2.36	0.33	0.94	*NS
11	Participate in performance reviews	3.54	0.23	3.33	0.21	3.44	0.22	0.35	*NS

Data presented in table 2 on the trainee activities for quality apprenticeship system in pineapple production revealed that the 11 items has their grand mean (X_G) values ranged from 2.22-3.81. These values were within 1.50 to 4.00, indicating that the 11 items were trainee activities for quality apprenticeship system in pineapple production. The table also revealed that the grand standard deviation (SDG) of the 11 items ranged from 0.11-1.15, which were below 1.96. This indicated that the respondents were not too far from the mean and from one another in their responses thereby confirming the validity of the items.

Furthermore, all the 11 items have their t-calculated values greater than 0.05. This indicated that there was no significant difference in the mean ratings of the two groups of respondent on the activities of the trainees for quality apprenticeship system in pineapple production. Therefore, the null hypothesis of no significant difference was upheld for each of the 11 items.

Discussion of Findings

The study found out in table 1 that organize training programme, prepare task analysis sheet, expose apprentice on soil fumigation, demonstrate on removal of dry and weak leaflets, treat plant to enhance flowering, deep the planting materials into 0.1% diazinion diluted with 4.5ml of water and assign fast learners to work with slow learners among others were the activities expected of the trainers for effective apprenticeship system in the study area. The findings of the study in this direction were in agreement with the findings of Aneke (2014) in a study on enhancement of student enrolment in agricultural education in universities in South East Nigeria where the author found out that and location of an enhancement factors for entrepreneurship growth and development and exposure of apprentice to areas relevant to their training, instructing them on procedure to follow using the task analysis sheet, assigning duties to the apprentice after repeated observation during demonstration, utilization of appropriate tools and equipment by apprentice during practice, monitoring and supervising the apprentice as they practiced and keeping record of attendance among others were the activities of the trainers for quality apprenticeship system. The findings of the study were further in conformity with the findings of Onoh (2015) who carried out a study on location as an enhancement factors for entrepreneurship growth development in Enugu state where the author indicated that provision of necessary facilities in the site for training is a necessary tool for business growth and development. The findings of the study were also in conformity with the findings of Wiseconscon department (2006) that listed the trainer responsibilities as providing the apprentice with onthe–job training supervised by a skilled journey worker, maintain a work environment that is conducive to learning and offer the apprentice a safe place to work with proper equipment, provide wellrounded training so the apprentice learns all aspects of the trade by the completion of the training programme, monitor the apprentice‘s on-the-job progress and provide feedback on performance, pay the appropriate apprentice wages while attending related instruction, keep accurate records of the onthe job training while the trainee avoid

absenteeism and attend and participate in related instruction, advise the employer of any deficiencies in apprenticeship training., follow the employer's work rules and policies among others.

The findings of the study in Table 2 revealed that pay necessary fee for agreement, be punctual to the training venue start the training at agreed date and time. Observe trainers as they select materials for pineapple production while the trainees watch the trainer demonstrate the skills and clarify issues not adequately comprehended were the activities required of the trainees in quality apprenticeship system. The findings of the study in this direction were in consonance with the findings of Aneke (2014) in a study on enhancement of activities of student industrial work experience in South East Nigeria where the author found out that punctuality, purchase of needed facility and clarifying issues not well understood among others were the trainee activities of trainees. NAS (2018) also found out that employers with a solid record of completing apprentice typically conduct a thoroughly recruitment and assessment of candidates to ensure that the apprentice adapt successfully in the company and also remains with the business even later after graduation, to achieve this objective trainers make good selection when hiring apprentices by taking time when evaluating potential apprentice communicating regularly with the skilled worker(s) and the apprentice to ensure he/she is available when appropriate level of supervision and training is taking place, conduct regular performance reviews to help him/her stay interested in the work and increase the overall skill base of the company while permitting apprentices to attend related instruction that foster a positive working environment where apprentices to attend related instruction that foster a positive working environment where apprentices feel appreciated by the company thereby reducing future hiring and training costs. Demonstrate your commitment to training by visibly displaying training certificates and providing recognition for excellent employee. The trainer has to explain the expectations of the employer explain the expectation of coworkers, explaining what the apprentice can expect from the employer, listening to the concerns of the apprentice, explaining the working relationship between the trades, making the apprentice to be aware of all safety aspects of the job.

Conclusion

Pineapple business is a very lucrative business especially in Awgu. The demand of the product is higher than the supply. This is because the production is left to the old and aging farmer and the inability of the youth to join in the production. Some youth register for apprenticeship in pineapple production but most trained find it difficult to stay in the business due to non-quality apprenticeship system. This study was therefore carried out to indentify the activities of trainers and trainees in the apprenticeship system for quality product.

The study identified 40 items (19 for trainers and 11 for trainees) that could help organise quality apprenticeship for youth in Awgu.

Recommendation

It was therefore, recommended that the identified items be utilized by trainers and trainees in engaging in quality apprenticeship system in Awgu.

References

Aneke, C. U (2014). Enhancement of Students Enrolment in Agricultural Education in Universities in South East Nigeria. *Unpublished PhD* Thesis submitted to the Department of Technology and Vocational Education. Enugu State University, Enugu.

Asouzu, I.A., (2010). Entrepreneurial Skills required by Women Retirees in Processing Pineapple Fruit into Juice for Sustainable Business in Enugu State. Nigerian Vocational Association Journal 15 (1) 379-386

Azita Awad Berar (2017); Ilo Toolkit for quality apprenticeship: a guide for policy makers. Retrieved on 17/9/18 from *http://www.ilo.org/wcmsp5/groups/public*

Ifeanyieze, F. O. (2012). Improvement Needs of Teachers of Agriculture in soil Conservation for Effective Teaching in College of Education, in South East Nigeria. A PhD Thesis submitted to the Department of Vocational Teacher Education University of Nigeria, Nsukka

Joy P. P (2016). Pineapple for healthy living retrieved on 18/6/2018 from http://www.researchgate.net.publication

Maduka B. C (2016). Development of a Training Programme in Cocoyam Production for Enhancing Job Opportunities for Youth in South-East Nigeria. A PhD Thesis submitted to the department of Vocational Teacher Education, University of Nigeria, Nsukka

Mayhew, S. & Anne, P. (1996). Tropical and Subtropical Foods. London Macmillan Publishers.

National Apprenticeship Service NAS, (2018). A guide to apprenticeship retrieved on 17/9/2018 from *https://www.managers.org.uk*

Onoh, C.E.C.(2015). Location as an Enhancement Factor for Entrepreneurship Growth and Development in Enugu State. *Journal of Research in Science and Technology Education* Department in Enugu State. Journal of Research in Science and Technology Education. Enugu State

University Enugu.

Schulze, R.E. & Maharay, M. (2017). Pineapple: Optimum Growth Areas, retrieved on 18/06/2018 from *www.serve2.dirisa.org* Singh, S. S (2015). Handbook Agricultural Science. India Gautan Graphic Printers 13-ag-scimsw

Shu, S. (1999). Pineapple Processing, Retrieved on

18/08/2018 from *http://www.pineapple.org.com*

Portia, A.W., Olivia, C., Christopher, J.A. & George, O.E. (2017). Impact of Climate Variability on Pineapple Production in Ghana-Africa and Food Security 6:26 retrieved on 18?8?2018 from

http://www.agricultureandfoodsecurity.biome dcetral.com

Ugwuoke, C. U. & Ejiofor, T. E. (2010). Skills Required by Secondary School Graduates for Success in Pineapple Production Enterprises in Nsukka Agricultural Zone of Enugu State. Nigerian Vocational

Association Journal 15(1). Pp 172-183 Yayook, Y.J., Lombin, G. & Owonubi, J. J. (1988). Crop Science and Production in Warm climates: London, Macmillan Publishers

Wiseconsin Apprenticeship Advisory Council (2018). Apprenticeship: It makes good business sense. Retrieved on 17/09/2018 from *https://dwd.wiseconsin.gov/apprenticeship/*