WORK SKILLS REQUIRED BY SECONDARY SCHOOL GRADUATES IN SUGARCANE PRODUCTION ENTERPRISES FOR ECONOMIC SECURITY IN KWARA STATE, NIGERIA

Shuaib, S.B.
Department of Science Education (Agricultural Education Unit),
University of Ilorin, Ilorin, Nigeria
Correspondence-author:shuaib.sb@unilorin.edu.ng,+2348036278956
IRCID: 0000-0001-5645-1386

Adesanya, E.O.
Department of Science Education (Agricultural Education Unit),
University of Ilorin, Ilorin, Nigeria

Afolabi, K.O.
Department of Science Education (Agricultural Education Unit),
University of Ilorin, Ilorin, Nigeria

Jimoh, S.B.
Department of Science Education (Agricultural Education Unit),
University of Ilorin, Ilorin, Nigeria

&

Raji, M.
Department of Science Education (Agricultural Education Unit),
University of Ilorin, Ilorin, Nigeria

Abstract
The study identified work skills required by Secondary School graduates in sugarcane production enterprises in Kwara State, Nigeria. Four research questions and four null hypotheses guided the study. The study adopted a descriptive survey research design. The sample population for this study was 200 respondents consisted of 158 sugarcane farmers, 19 agricultural science teachers and 23 extension agents which were purposively selected for the study. A 37-item questionnaire titled Work Skills Required in Sugarcane Production Questionnaire (WSRSPQ) was used to obtain data from respondents. The questionnaire items were validated by three experts. Cronbach Alpha Method was used to determine the internal consistency of the items and a reliability coefficient of 0.79 was obtained. The data collected were analyzed using mean to answer the questions while ANOVA statistics was used to test the null hypotheses. The finding of the study revealed that graduates required all the work skills in planning, pre-planting, post planting and harvesting and marketing operations. There was no significant difference in the mean ratings of respondents on the work skills required in planning, pre-planting and planting, post planting, harvesting and marketing operations in sugarcane production. The study recommended, among others, that extension agents should harness the work skills items identified by the study and incorporate them into training programmes for training secondary school graduates and other youths to make them economically secure through sugarcane production.

Keywords: *Work Skills, Secondary School, Graduates, Sugarcane Production*

Introduction

Sugarcane (*Saccharum officinarum* L.) is an important food, cash and industrial crop. It a genius of tall perennial grass (Family *Poaceae*, tribe *Andropogoneae*). The crop is believed to have originated from Papua New Guinea (Ajadi, *et.al*, 2018). European sailors were responsible for the introduction of the crop into Nigeria in the 15th century (Ajadi, *etal*, 2018; Busari, 2004) and since then it has been widely cultivated in all ecological zones in Nigeria. It is also native to warm temperate to tropical regions of the old world. Sugar is mainly produced from sugarcane. The propagation of the crop is through the use of stem cuttings or setts. Each cutting has nodes which give rise to new plants (Biwas, Rajendra, & Kapol, 2018).

Sugarcane has a distinct feature as it takes 8-12 months to attain full maturity (Girei & Giroh, 2012). Since it is a perennial crop, at least three harvests are made from the plant (plant crop and two ratoons) and in some cases four to five harvests are made from a single planting (Takim, Fadayomi, Alabi,& Olawuyi, 2014) . Sugarcane is said to be matured, when it is green, yellow, purplish or reddish. It is expected to be ripening when the sugar content is at its maximum or full (Giren, *etal.,* 2014; Onwueme & Sinha, 1993).

Basically, there are two types of sugarcane produced in Nigeria: chewing and industrial sugarcane. The chewing sugarcane is produced more than that of industrial one. Thus, in Nigeria, about 53-65 percent of the total cane produced are chewing sugarcane. The bulk of these is of course consumed raw for its sweetness of the juice but some of it is also processed into variety of products such as sugar, molasses, baggasse "jaggery" (Mazarkwaila), sweets (Alewa) and left-over leaves / stalks (Busari & Misari , 1997; Giren, *etal.,* 2014).

Sugarcane production contributes significantly to the social, economic and religious life of Nigerians. It is the major source of table sugar, provides employment and incomes for farmers and also revenue for the government. Its bye-products are found as sources of raw-materials in industries such as medicinal, pharmaceutical, confectioneries and beverages, electricity and motor fuels (in form of bio-fuel). The leaves are also good fodder for livestock. Sugarcane in traditional religion in Nigeria is used as recipe or ingredients in making prayers during the marriage, naming and freedom ceremonies. For economic success and profit making in sugarcane production, secondary school graduates require adequate entry work skills in its production.

Work can be described as an occupation or job which somebody lawfully engages to earn a decent living. According to Onu, Lan and Ibrahim (2016), work can be referred to as employment, job or occupation . It is the effort exhausted on a particular task. Every work requires certain skills before someone can perform it efficiently. Skill, as expressed by Okeme, Ekele and Anam (2014), refers to the ability of a person to perform an act expertly or excellently. It is that expertness practised ability or proficiency displayed in the performance of a task. Skill is a well established habit developed by somebody in carrying out

something. It entails the acquisition of performance capability through repetitive performance of operation (Osinem & Nwoji, 2010). It is the ability in performing a given task as well as a result of training and practice (Nwosu & Ugwuede, 2017). Work skills in sugarcane production are the practical or entry skills required by secondary school leavers to turn out sugarcane in a large quantity and quality to enhance economic security as a result of the income generated from the sale of sugarcane. In this study, work skill is the act of enhancing the skills possessed by graduates to enable them perform all the tasks in planning, pre-planting, planting and post planting of sugarcane production.

Secondary school graduates in Kwara State are youths that have completed three years of upper basic education (Junior Secondary School) and the three years of Senior Secondary School. Some of them have obtained admission into higher institutions after graduation while many of them that have graduated did not possess any work skill for some agricultural occupation. The reason is because the secondary school leavers are not well equipped with any production skills in school due to the inability of their teachers to accomplish the objectives of the secondary school agricultural education curriculum (Mojekwu, 2010). In the opinions of Obue (2003) , poor agricultural skills among secondary school leavers is due to inadequate teachers, inadequate facilities and equipment for the implementation of the Agricultural Science curriculum and inadequate exposures of students to practical lessons especially on animal and crop production of which sugarcane production is an aspect of them.

Production is the process of changing an input into output. It is referred to those sets of procedures and activities that result into creation of goods and services (Ekele, 2015). Are, Igbokwe, Asadu and Bawa (2013) described production as any activity involving human efforts that lead to the satisfaction of wants or needs. These wants or needs may take any of these two forms: goods and service. It is therefore any activity that leads to the creation of goods and services. Production is said to be complete when it reaches final consumers (Adejo, Adejo, & Zakari, 2018). Production is important because it sets the limit as to what can be consumed and therefore enhances the standard of living of people. The higher the volume of production of goods and services the more will be quality available for satisfying the wants of citizens, and the higher will be the standard of living (Are, et.al., 2013). Production, in this context, is the various procedures and activities involved in the creation of sugarcane as output by secondary school graduates for economic security in Kwara State. Thus, production is the ability of secondary school graduates to combine inputs such as land, labour, income, fertilizers, and other inputs to produce sugarcane in large or commercial quantity and quality in order to make profits from its sales and be economically secure.

Economic security is the ability of individuals, households or communities to cover their basic needs in sustainable manner and with dignity. This can vary according to an individual's physical needs, the environment and prevailing

cultural standards. Food, basic shelter, clothing and hygiene quality are vital needs, as do related expenditures such as the fundamental assets needed to earn a living, and the costs associated with healthcare and education (International Committee of the Red Cross, ICRC, 2015). Within the context of this paper, therefore, economic security in this context also entails the ability of the secondary school graduates to earn living through decent means in sugarcane production.

However, due to the large number of secondary school graduates roaming about the streets jobless and unable to gain admission into higher institutions, it is, therefore, necessary to develop a work skill module to train these school leavers. Against this background, this study therefore, identifies work skills required by secondary school graduates in sugarcane production in Kwara State, Nigeria.

Statement of the Problem

Sugarcane is an important food and industrial crop in Nigeria. Sugar is an essential part of some Nigerian diet. It can be consumed raw, processed or part of ingredients to prepare some local dishes. It is also a source of energy, sweeteners and preservatives. It forms a major raw material for industries such as paper, organic chemical and confectionary industries. Sugarcane has products such as biomass, molasses, bagasse and can be used to produce electricity, bio-fuel, fertilizer and other products. Despite these laudable benefits of sugarcane to Nigeria's economy, the country is yet to meet up with local demand and still depend on importation to meet up with the demand of which the country has comparative advantage.

Recently, the Federal Government of Nigeria launched a presidential Initiative on Agriculture (Agricultural Promotion Policy) for crop production as a boost for her foreign exchanges, meeting local and international demands and to diversify her economy from oil-dominated economy. One of the crops this policy recognizes is sugarcane because Nigeria imports substantial amounts of the needed sugarcane products into the country in order to meet local consumption and industrial uses. Regrettably, the sugarcane production in Kwara State is predominantly engaged by aged farmers who are very weak to produce in commercial quantities while the youths or school leavers prefer to roam about streets looking for non-existence jobs in the cities and some of them take up Okada riding as a business. The reckless among them indulge in social vices such as theft, armed robbery and thuggery, among others. These school leavers can be meaningfully and productively engaged in sugarcane production if they acquire the needed or required work skills in its production.

Several empirical studies have been carried out in the identification of work skills in agricultural production; however, there are little or no studies in the identification of work skills in sugarcane production in Kwara State, Nigeria. Therefore, this study was intended to fill this gap. The study, therefore, identified work skills required by secondary school graduates in sugarcane production in Kwara State, Nigeria.

Purpose of the Study

The main purpose of this study was to identify work skills required by secondary school graduates in sugarcane production enterprises in Kwara State, Nigeria. Specifically, the study identified the:

1. work skills in planning operations of sugarcane required by secondary school graduates;
2. work skills in pre-planting operations of sugarcane required by secondary school graduates;
3. work skills in planting and post-planting operations of sugarcane required by secondary school graduates; and
4. work skills in harvesting and marketing operations of sugarcane required by secondary school graduates.

Research Questions

The following research questions were posited to guide the study

1. What are work skills required by secondary school graduates in planning operations in sugarcane production?
2. What are works skills required by secondary school graduates in pre-planting operations in sugarcane production?
3. What are the works skills required by secondary school graduates in planting and post-planting operations in sugarcane production?
4. What are the work skills required by secondary school graduates in harvesting and marketing operations in sugarcane production?

Research Hypotheses

The following hypotheses were provided to guide the study at a 0.05 level of significance.

Ho_1: There is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on work skills required by secondary school graduates in planning operations in sugarcane production.

Ho_2: There is no significant difference in the mean responses of agricultural science teachers, sugarcane farmers and extension agents on work skills required by secondary school graduates in pre-planting operation in sugarcane production.

Ho_3: There is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on work skills required by secondary school graduates in planting and post-planting operations in sugarcane production.

Ho_4: There is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on work skills required by secondary school graduates in harvesting and marketing operations in sugarcane production.

Methodology

Four research questions and four hypotheses were raised for this study. Descriptive survey research was adopted

for this study. In this design, same information is gathered from an unbiased representative group of population being investigated with the use of questionnaire. This design was considered suitable because the opinions of a representative of respondents were assessed using questionnaire.

The study was conducted in Kwara State which is made up of four (4) Agricultural zones based on ecological characteristics, cultural practices and administrative convenience. These are Zone A: Baruten and Kaiama Local Government Areas (LGAs); Zone B: Edu and Patigi LGAs; Zone C: Asa, Ilorin East, Ilorin West, Ilorin South and Moro LGAs; and Zone D: Ekiti, Ifelodun, Irepodun, Offa, Oyun, Isin and Oke-Ero LGs. Agricultural Zone B was purposively selected for this study because it is known for sugarcane production in the state and it is the only agricultural zone where sugarcane is produced in commercial quantities.

The population for this study consisted of all sugarcane farmers, agricultural science teachers and extension agents in the study area. The sample for the study was 200 respondents consisted of 158 sugarcane farmers, 19 agricultural science teachers and 23 extension agents which were purposively selected for the study. Since the population is small and manageable, there was no sampling.

A 37-item questionnaire titled Work Skills Required in Sugarcane Production Questionnaire (WSRSPQ) was used to obtain data from respondents with a four-point rating scale of highly required (HR), averagely required (AR), slightly required (SR), and not required (NR) with corresponding values of 4, 3 , 2 and 1 respectively. The instrument had four sections with section A having 9 items, section B having 7 items , section C having 10 items and while section D having 8 items to cover all the four specific purposes of the study. Any item with a mean rating of 2.50 was considered required and items that scored below 2.50 were considered not required. Three experts validated the instrument: two from the Department of Agronomy and one from the Department of Science Education (Agricultural Education Unit), University of Ilorin, Ilorin, Nigeria. Reliability of the instrument is done by administering 20 copies of the questionnaire on sugarcane farmers in Mokwa Local Government Area of Niger State which were not part of the study area. The Cronbach Alpha method of reliability was used to determine the internal consistency and a reliability coefficient of 0.79 was obtained. The questionnaires were administered to the respondents with the aids of two research assistants and all the 200 were retrieved for analysis. Mean and standard deviation were used to answer the research questions while ANOVA was used to test the hypotheses at a 0.05 level of significance.

Results of the Findings

Each of the research questions is presented with their corresponding research hypothesis

Research Question One: What are the work skills required by secondary school graduates in planning operation in sugarcane production?

Ho_1: There is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on work skills required by secondary school graduates in planning operations in sugarcane production

Table 1

Data in Table 1 revealed that 9 items had their mean values ranged from 3.41 to 3.89. This showed that all the 9 items had a mean value above the cut-off point of 2.50 which indicated that all the work-skills were rated required by respondents in planning operation in sugarcane enterprises. The table also revealed that all the items had their standard deviation ranged from 0.65 to 0.87 which shows that the respondents were not far from the mean in their responses. Also since the *p*-value for all the items is greater than a 0.05 level of significance, the null hypothesis that there is no significant difference in the mean response of the three categories of respondents is hereby not rejected. This implies that there is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on all the itemized skills required for planning operations on sugarcane production.

Table1: ANOVA, Mean and Standard Deviation of Responses on Work Skills Required by Secondary School Graduates in Planning Operations in Sugarcane Enterprises (n=200)

N	Statements	$\bar{X}G$	SD	p-value	Remark
1	Determine soil type that can support sugarcane production.	3.56	0.87	.902	R, NS
2	Choose farm location or site.	3.72	0.74	.777	R, NS
3	Draw up programme plan on sugarcane production.	3.67	0.65	.751	R, NS
4	Formulate specific objective(s) for growing sugarcane.	3.41	0.71	.769	R, NS
5	Make a decision on farm size.	3.72	0.75	.864	R, NS
6	Identify relevant farm inputs required for sugarcane production.	3.75	0.75	.852	R, NS
7	Identify relevant sources of labour.	3.64	0.73	.213	R, NS
8	Identify farming practices to adopt.	3.62	0.87	.756	R, NS
9	Decide on harvesting method to adopt.	3.89	0.65	.808	R, NS

Keys: $\bar{X}G$=Grand Mean, SD= Standard Deviation, R= Required, NS= Not Significant.

Research Question Two: What are the work skills required by secondary schools graduates in pre-planting operation in sugarcane production?

Ho_2: There is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on work skills required by secondary schools graduates in pre-planting and planting operations in sugarcane production

Table 2

Data in Table 2 revealed that 7 items had their mean values ranged from 3.43 to 3.76. This shows that all the 7 items had a mean value above the cut-off point of 2.50

which indicated that all the work skills were rated required by the respondents in pre-planting operation in sugarcane enterprises. The table also revealed that all the items had their standard deviation ranged from 0.79 to 1.80 which shows that the respondents were too not far from each other mean in their responses. That is, there is little or moderate variations in their responses. In addition, the test of hypothesis shows that the *p*-value for all the items is above the 0.05 level of significance which implies that the null hypothesis that there is no significant difference in the mean response of the three categories of respondents is hereby upheld. That is , there is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on the all the itemized skills required for pre-planning skills required by secondary school graduates in sugarcane production.

Table 2: ANOVA, Mean and Standard Deviation of Responses on Work Skills Required by Secondary School Graduates in Pre-planting Operations in Sugarcane Enterprises (n=200)

N	Statements	$\bar{X}G$	SD	p-value	Remark
1	Determine criteria for land selection.	3.75	0.79	.847	R, NS
2	Select and survey land.	3.76	1.80	.837	R, NS
3	Clear grass, cut down trees and remove stump of felled trees.	3.66	1.77	.909	R, NS
4	Gather the cleared vegetation into heaps and compost.	3.72	1.77	.998	R, NS
5	Divide the land into plots of desired dimensions and level the surface	3.43	1.40	.940	R, NS
6	Plough the soil to improve the soil structure.	3.55	1.57	.805	R, NS
7	Make the ridge of appropriate dimensions.	3.72	1.78	.986	R, NS

Keys: $\bar{X}G$ = Grand Mean, SD= Standard Deviation, R= Required, NS= Not Significant,

Research Question Three: What are the work skills required by secondary school graduates in planting and post-planting operations in sugarcane production?

Ho_3: There is no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on work skills required by secondary school graduates in planting and post-planting operations in sugarcane production.

Table 3

Data in Table 3 revealed that 10 items had their mean values ranged from 3.49 to 3.84. This shows that all the 10 items had a mean value above the cut-off point of 2.50 which indicated that all the work skills were rated required by the three respondents in planting and post-planting operation in sugarcane enterprises. The table also revealed that all the items had their standard deviation ranged from 0.45 to 1.76 which shows that the respondents were far from each other in the mean in their responses. This implies that there is a wide variation in their mean responses. With regards to the test of hypothesis, since the *p*-value for all the items is greater than a 0.05 level of significance, the null

hypothesis is hereby not rejected. This means that there was no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on planting and post-planting operation skills required by secondary school graduates for sugarcane production.

Table 3: ANOVA, Mean and Standard Deviation of Responses on Work Skills Required by Secondary School Graduates in Planting and Post-Planting Operations in Sugarcane Enterprises (n=200)

N	Statements	$\bar{X}G$	SD	p-value	Remark
1	Select good quality stem for planting.	3.49	1.74	.634	R, NS
2	Mark out the required row spacing 4-5cm between rows and 4-5cm within rows.	3.72	1.76	.773	R, NS
3	Treat stems with fungicide before planting.	3.67	0.70	.757	R, NS
4	Bury the stem in the planting distance.	3.83	0.84	.987	R, NS
5	Cover each stand with soil and mulch materials.	3.78	0.84	.536	R, NS
6	Weed the farm regularly with appropriate methods.	3.84	0.88	.613	R, NS
7	Add fertilizer to the soil for good growth and yield.	3.47	0.49	.703	R, NS
8	Use appropriate methods of pests and diseases control.	3.44	0.45	.927	R, NS
9	Practice appropriate irrigation technique.	3.68	0.76	.755	R, NS
10	Drain excess soil water when necessary.	3.69	0.71	.638	R, NS

Keys: $\bar{X}G$ = Grand Mean, SD= Standard Deviation, R= Required, NS= Not Significant.

Research Question Four: What are the work skills required by secondary school graduates in post- harvesting and marketing operations in sugarcane production?

Ho_4: There is no significant difference in the mean responses of agricultural teachers, sugarcane farmers and extension agents on work skills required by secondary school graduates in post-harvesting and marketing operations in sugarcane production

Table 4

Data in Table 4 revealed that 8 items had their mean values ranged from 3.31 to 3.76. This showed that all the 8 items had a mean value above the cut-off point of 2.50 which indicated that all the work skills were rated required by the three categories of respondents in post-harvesting and marketing operation in sugarcane enterprises. The table also revealed that all the items had their standard deviation ranged from 0.29 to 0.84 which show that there is moderate variability in the mean response of response of the respondents. Regarding to the test of hypothesis, since the *p*-value for each of the items is greater than a 0.05 level of significance; the null hypothesis is hereby not rejected. This means that there was no significant difference in the mean response of agricultural science teachers, sugarcane farmers and extension agents on harvesting and marketing operations work skills required by secondary school graduates for sugarcane enterprise.

Table 4: ANOVA, Mean and Standard Deviation of Responses on Work Skills Required by Secondary School Graduates in Harvesting and Marketing Operations in Sugarcane Production (n=200)

N	Statements	$\bar{X}G$	SD	p-value	Remark
1	Identify matured sugarcane stem through taste.	3.72	0.75	.783	R, NS
2	Burn to remove leave and other trash that make sugarcane harvesting difficult.	3.74	0.76	.755	R, NS
3	Identify harvesting equipment or tools.	3.75	0.78	.876	R, NS
4	Grade and standardize products.	3.66	0.70	.638	R, NS
5	Identify potential buyers.	3.62	0.66	.933	R, NS
6	Recognize and analysis marketing opportunity.	3.76	0.77	.847	R, NS
7	Keep appropriate records and inventories.	3.31	0.29	.897	R, NS
8	Determine farm profit loss based on farm proceeds.	3.74	0.84	.937	R, NS

Keys: $\bar{X}G$ = Grand Mean, SD= Standard Deviation, R= Required, NS= Not Significant.

Discussion of the Findings

Results from Table 1 revealed that all the 9 items on planning operation in sugarcane production were rated required by the respondents. These work skills include determining soil type that support sugarcane production, choosing farm location, drawing up programme on sugarcane production, formulating specific objective for growing sugarcane, making a decision on farm size, identifying relevant farm input required for sugarcane production, identifying relevant sources of labour, identifying farming practice to adopt and deciding on harvesting method to adopt. The identified planning skills are

deemed necessary by the respondents as they form the foundation for the establishment of worthwhile enterprise. This result is similar to the findings of David and Okeke (2015) that 11 work skills were required by secondary school leavers in planning cocoyam enterprises in Cross Rivers State, Nigeria and the work skills are formulating specific objectives for cocoyam production, reviewing the objectives periodically according to the forces of demand and supply, drawing a timetable of activities involved in cocoyam production, choosing a farm location, taking a decision on farm size , identifying relevant sources of labour , identifying relevant farm inputs required for cocoyam production enterprises, identifying sources of funds for establishment of cocoyam production enterprises, identifying market outlets for cocoyam enterprises, preparing a budget for cocoyam production enterprises and keeping good records of activities that unfold in the enterprise.

Other results in Table 2 revealed that all the 7 items on pre-planting operation were rated required by respondents in sugarcane production. These work skills include determining criteria for land selection, surveying and selecting land, clearing grass, cutting down trees and removing stump of felled trees, gathering the cleared vegetation into heaps and burning them, levelling the surface and dividing the land into plots of desired dimensions, ploughing the soil to improve the soil structure and making the ridge of appropriate dimensions. The work skills

required in pre-planting operations were the necessary operations needed for establishment of any crop. Therefore for secondary school graduates to be successful in sugarcane production they need to be well skilled in these operations. This result is similar to the findings of Shishi and Wombo (2016) that secondary school leavers in Benue State, Nigeria, required 10 work skills in planting of tomato. These work skills in planting of tomato include: selecting a suitable site for transplanting tomato seedlings , surveying the land of existing vegetation, either manually or mechanically, clearing grasses, cutting down trees and removing stumps of felled trees, gathering the cleared vegetation into heaps and burning them, levelling the surface and dividing the land into plots of desired dimension, ploughing the soil to improve the soil structure, harrowing the soil to pulverize it and incorporating weeds and manure into soil for effective rooting, broadcasting organic manure on farmland to increase soil fertility, mapping out the land to create roads and paths of 1m apart, and making ridge of appropriate dimension.

Furthermore, the results in Table 3 revealed that all the 10 works skill items on planting and post-planting operations were rated required by respondents in Sugarcane production. These planting and post- planting operation in sugarcane production includes selecting good quality stem for planting, marking out the required row spacing 4-5cm between rows and 4-5cm within rows, treating stems with fungicide before planting, burying the stem in the planting distance, covering each stand with soil and mulching materials, weeding the farm regularly with appropriate methods, applying fertilizer on the soil for good growth and yield, adopting appropriate methods of pests and diseases control, practising appropriate irrigation technique and draining soil water if moisture is in excess. The implication of this finding is that good management of crops on the field brings about good yield which brings better profit for a farm enterprise. Therefore, for secondary school graduates to be successful in sugarcane enterprise they will need to be well skilled in field management of sugarcane. This finding of the study is similar to that of Eze, Asogwa , Abu and Mohammed (2013) that 9 occupational competencies were required by prisoners in management of sugarcane production in Enugu State , Nigeria and these competencies include applying water to the farm during drought or dry season, applying organic manure at the rate of 150-250 kg / ha after planting or harvesting, weeding the farm regularly depending on the rate at which weeds grow, controlling pests and diseases through appropriate method, reducing sugarcane cluster to 2-3 stems per stand, cutting sugarcane for transplanting when the stem is vigorous (4-6 months), providing security especially between the ages of 8-12 months of planting, allowing ratoons to re-grow on stumps for 5-10 times and replacing sugarcane stumps when subsequent yield decreases.

It was found out in Table 4 that all the 10 work skill items in post- harvesting and marketing operation in sugarcane production were rated required by respondents. These include identifying matured sugarcane stem through taste, burning to remove leave and other trash that make sugarcane harvesting difficult,

identifying harvesting equipment or tools, grading and standardizing products, identifying potential buyers, recognizing and analyzing marketing opportunity, keeping appropriate records and inventories and determining farm profit loss based on farm proceeds. Producing or growing crops without proper harvesting and post-harvest handling is tantamount to waste of time and resources. Hence, improving the skills of secondary school graduates in area of harvesting and marketing of sugarcane will not only help them to obtain better harvest but will help them achieve a successful enterprise. This result tallies with that of Eze, et.al. (2013) in a study carried out in Enugu State that 11 occupational competencies were required by the prisoners in harvesting and marketing of sugarcane. These competencies include cutting sugarcane stem close to the ground at 12-14 months for eating or planting , trimming the leaves on the stem to the top to delay spoilage/ decay, storing it in a cool dry place, bundling the stems into carriable sizes, transporting bundled stems to market for sales, sorting bundles into grades/ size, fixing prices for each grade, advertising sugarcane locally or through the media, selling to buyers at the site or market, keeping appropriate record of sales, calculating the expenditure and income to determine profit. This result is also similar to the findings of Nwosu and Ugwuede (2017) that senior secondary school agricultural science students need 13 entrepreneurial skills in harvesting of cassava roots for self –reliance in Enugu State while 12 skills in marketing of cassava roots are equally needed. The harvesting skills include harvesting when the tubers have not become fibrous or woody, harvesting when cassava is mature at 12-15 months, harvesting when its roots are old enough to accumulate starch, harvesting when 2 or 3 leaves turn yellow or fall off, harvesting when the soil starts cracking but not before 9 months, harvesting when the soil is moist for easy harvesting and to minimize damage, harvesting in piece-meal as need arises, harvesting cassava with cutlass, hoe or machines, harvesting by lifting the lower part of the stem and pulling the roots out of the ground by hand, harvesting using mechanical devices to loosen the roots by hands, taking the harvested tubers to packing shed, and removing decayed tubers, smaller roots and sand attached to the tubers. The 12 entrepreneurial skills in marketing of cassava roots for self –reliance in Enugu State, Nigeria include advertising both harvested and processed cassava roots , making a market survey to identify the cost of different quality and quantity of cassava products in the market, making a market survey to identity measures used and prices attached to each measures, fixing the prices according to each product, packaging and grading the cassava roots and products according to quality and quantity , determining when to sell or store cassava products for maximum profit, finding distribution channels, keeping all financial records including income and expenses , bargain prices of cassava products with the buyers, selling on the spot or transport to buyers, receive payment at the selling spot and keeping balance sheet to determine profit margin or calculate income and expenditure.

Conclusion

The study identified the work skills required by secondary school graduates in sugarcane production enterprises in Kwara State, Nigeria. Based on the findings of the study, it can be concluded that 9 work skills were required in planning, 7 works skills were required in planting and post- planting , 10 work skills were required in harvesting and marketing in sugarcane production.

Recommendations

Based on the findings of the study, it is recommended that:

1. The work skill items identified in this study should be harnessed and incorporated into training programmes by extension agents for the training secondary school graduates and other youths to make them competent and economically secure through sugarcane production.
2. Agricultural Science teachers and extension agents should add up skills identified by the study into the training of secondary school students as part of the Young Farmers' Clubs Projects
3. The skill acquisition centres should utilize the identified skills in the training of the unemployed graduates and individuals that enrolled in the programme to make them competent in the sugarcane production.
4. Government could package the identified skills into a training programme module and integrate it into the skill acquisition centres in the State. This would help to equip secondary school graduates better for sugarcane production.

References

Adejo, P.E., Adejo, E.G., & Zakari, J. (2018). Evaluation of the profitability and performance of youth participation in Cashew Nut (*Anacardium Occidentale*) marketing in Ankpa Local Government Area of Kogi State, Nigeria. *Journal of Asian Rural Studies*, 2(1), 49- 56.

Ajadi, A.,Ehirim, B.O., Ishaq, M.N., Isah, A., Isong, A., Ghali,A. Kester,O. & Ejizu, A.N.(2018).Regeneration of industrial sugarcane using in-vitro plant apical meristem. *Electronic Journal of Plant Breeding*, 9(4), 1342-1347.

Are, L.A., Igbokwe, E.M., Asadu, C.L.A., & Bawa, G.S. (2013). *Comphrensive certificate Agricultural Science for senior secondary schools.* Ibadan: University Press Plc.

Biwas, B. & Rajendra, P.& Kapol, K. (2018). Assessing socio-economic condition of sugarcane producers in Nawalparasi District of Western Nepal. *Biomedical Journal of Scientific and Technical Research*, 12(3), 9296-9298.

Busari, L.D. & Misari, B.N. (1997). Traditional method of processing "Mazarkwaila and Alewa" from sugarcane. National cereal Research Institute, Agricultural Information Documentation and Dissemination, 1-21.

David, A.A. & Okeke, E.I. (2015).Work skills required by secondary school graduates for entry into cocoyam production enterprise in Cross River state, Nigeria. *Journal of Emerging Trends in Educational*

Research and Policy Studies (JETERAPS), 6(6), 418-424.

Ejiofor, C.U. (2013).Work skills required by secondary school graduates for success in cassava production enterprises. *Journal of Home Research Economics*, 12, 62-71.

Ekele, G.E.(2015). *Fundamentals of farm management, extension and agricultural education.* Makurdi: Otis Digital Press.

Eze, S.O. & Adeyemi, H.R.Y. (2012). Work skill improvement needs of women farmers in bitter leaf production for sustainable income in Abakaliki, Nigeria. *International Journal of Science and Nature*, 3(4), 810-814.

Eze, S.O., Asogwa, V.C., Abu, M., & Mohammed, D.I. (2013). Occupational competencies required by prisoners in sugarcane production for sustainable living after serving in Enugu State, Nigeria. *International Journal of Science and Nature*, 4(1), 104-108.

Girei, A.A. & Girol, D.Y. (2012). Profitability analysis of sugarcane (*Saccharum officinarum*) production problems in Numan Local government Area, Adamawa State, Nigeria. *JORIND*, 10(3), 141-145.

Mojekwu, I.N. (2010). *Work skills required by secondary school graduates for success in yam production and processing enterprises in Anambra State*. Unpublished M.Ed research thesis submitted to Department of Vocational Teacher Education, University of Nigeria, Nsukka.

Nwosu, P.I. & Ugwuede, A.A. (2017). Entrepreneurial skills needed in harvesting and marketing of cassava roots for self-reliance by senior secondary Agricultural Science Students in Enugu State. *International Technology Research Journal*, 5(1), 14-31.

Obue, A. (2013). Competencies required by secondary school graduates in breeding, feeding and rearing of snails in Delta State. *Nigeria Vocational Association Journal*, 18(2), 150-157.

Okeme, I., Ekele, G.E. & Anam, B. (2014). Entrepreneurial skills required by secondary school graduates for economic success in honey production in Kogi State. *Contemporary Business Research*, 3(1), 35-45.

Onu, F.M. & Alaribe, M.O. (2013). Work skills needs of secondary school graduates in pineapples production for poverty reduction in south east, Nigeria. *Journal of Institute of Education,* University of Nigeria, Nsukka.

Onuka, A.U. & Okafor, O.E. (2016). Work skill modules for enhancing the participation of secondary school leavers in regulated garri production occupation in South eastern Nigeria. *International Journal of Educational Studies, 1(3),145-151.*

Osinem, E.C. & Nwoji, U.C. (2010). *Students' industrial work experience in Nigeria. Concepts, principles and practice.* Enugu : Cheston Agency Limited

Shishi, C.M. & Wombo, A.B. (2016). Work skills required by secondary school leavers for entry into tomato production enterprise in Benue State. *International Journal of Innovative Research and Development*, 5(5), 12-19.

Ugwoke, E.O., Onu, F.M., Agboeze, M.U., & Asogwa, V.C. (2013). Occupational competencies required by retirees in Pawpaw production and marketing for sustainable livelihood in Enugu State, Nigeria. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 3(4), 19-26.