

Field Management Competencies Required by Agricultural Science Graduates in Plantain Production for Job Security in Enugu State.

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ABSTRACT

The general purpose of the study was to determine the field management competencies required by Agricultural Science Graduates for job security in Enugu State. Three research questions and three null hypotheses guided the study. The study was carried out in Enugu State using a descriptive survey research design. The population for the study was 113 respondents, comprising 79 registered plantain farmers and 34 extension workers in the six agricultural zones in Enugu State. There was no sampling because the population was manageable. The instrument used for data collection was a 20 item structured questionnaire developed by the researcher. The instrument was structured using a four point rating scale for data collection and was validated by three experts. Cronbach Alpha was used to determine the liability coefficient and the overall coefficient was 76 indicating that the instrument was reliable for use in data collection. Out of 113 copies of the questionnaire distributed, 106 copies were properly filled and used for the study representing 93.81% return rate. Mean and standard deviation were used to answer the research questions and t-test was used to test the null hypotheses at .5 level of significance at 104 degree of freedom. The result revealed that all the items under fertilizer application, propping and weeding operation competencies for plantain production are required by agricultural science graduates for Job security in Enugu State. The study therefore, concludes that the identified competencies may be used to improving the teaching-learning process and competency development among the students in secondary school. Based on the findings, the following recommendations among others were made: schools should map out demonstration farms where students would put into practices the identified competencies in plantain production and agricultural extension workers should utilize the identified competencies in their extension services to the young plantain farmers.

Key words: Plantain, Production, Competences, Job Security.

INTRODUCTION

Plantain, botanically known as (*musa paradisiaca*) is a crop with parallel broad leaves and herbaceous turgid stem. It is a staple food cherished by many indigenes of Nigeria and as such grown vastly in Western and Southern part of Nigeria including Enugu State. Plantain as noted by Ogwo (2012), originated from Asia and belongs to the family of musaceae. Ogwo described plantain plant as a large perennial herbs, with an underground stem called corm which serves as a storage organ and the true stem of plantain plant. Plantain is a monocot

which produces one large leave on spouting. Olojede and Odemelam (2018) noted that the corm of plantain produces aerial shoots which arises from the lateral buds that develop into eyes and later suckers; from the suckers of various varieties new stands are grown.

Plantain has many varieties. Medina (2022) stated that more than 60 plantain varieties have been identified. Medina stressed that the identified varieties can all be grouped into four, thus; Giant French, medium types,



small and dwarf types plantain. In the view of Okongwu (2014), plantain species are classified into bunch types, floral size types based on their characteristics. The bunch type was classified as French plantain, French horn plantain. While the floral size type was classified into giant plantain, medium and small plantain. Many farmers in Nigeria including Enugu State grow floral size plantain which according to Kainga and Seiyabo (2013), produces heavier bunches and greater number of fruits than others but has similar production method like other species. In the context of this study, plantain is described as monocot, herbaceous and perennial plant, grown to produce edible bunch-like fingers for food and fiber, which can serve for food security in Enugu State.

The importance derived from plantain plant cannot be over emphasized. For instance, Iwena (2015) stated that plantain is a versatile crop in the kitchen and useful source of carotene, vitamin A, potassium and iron. Plantain can be produced into different food products such as plantain flour and chips. It can be fried, roasted, used in baby food formulation, with soya beans (Okongwu, 2014). Okongwu further stated that plantain flour can be mixed with wheat flour to make bread, cake and biscuits. In agriculture, plantain peels, fodder, leaves, fruits are used as feeds for animals. The leaves, apart from its use as animal feed and mulching materials, can be used in wrapping foods and for preservation of kola nut and bitter kola.

Plantain has a lot of medicinal values. For instance, plantain is used in the treatment of ulcer, diarrhoea, throat infection, asthma, low libido in men and purification of blood, Olojede and Odoemelam (2018). Olojede and Odoemelam further highlighted that plantain is used in the cure of different diseases, such as cardio vascular and kidney problems, dehydration in infants, arthritis, gastro intestinal ulcer and diabetes. Based on the importance derived from plantain

plant and the increase in demand for the product, this then necessitates the need to prepare a skill acquisition training programme for plantain production that could enable the secondary school graduates to be self-employed, who are by the nature of Senior Secondary Certificate Examination (SSCE) curriculum are not skilled in any particular area to have a short term training and hence begin in the plantain production.

Production is the process of combining various inputs and materials in order to increase output for consumption (Udiofia and Nlebem, 2013). This means that production is the process and method used to transform tangible input (raw materials, semi-finished, finished goods into goods and services). Aneke and Udensi (2016) further defined production as the action of making or manufacturing from components or transforming a raw material or thing into a useful phenomenon. To ensure good development and adequate growth of the plant in the field, the farmer need to carryout field management operations.

Field management competencies are the series of activities carried out in a farm between the period of planting and harvesting. They are necessary to achieve a reasonable yield. Aneke and Udensi (2016) stated that field management operations include weeding, mulching, propping, fertilization, thinning, irrigation pest and disease control, and harvesting.

Field management competencies in the context of this study could be defined as the tasks, skills and activities in the form of labour, land and capital which can be combined and also can be given to agricultural graduates to enable them produce plantain for job security and economic sustainability. Agricultural science graduates are trained to be

competent in basic work activities through the secondary education curriculum.

Secondary education is the education given to children after primary education and before the tertiary stage. Federal Government of Nigeria, (2013) in National Policy on Education stated that secondary education is the education provided to people after the completion of primary education and before the tertiary education level. It is the bridge between primary and tertiary education. The broad goals of secondary education shall be to prepare the individual for useful living within the society and higher education. Among the objectives of secondary education are: to provide all primary school leavers with the opportunities for education of a higher level, irrespective of sex, social status, religious or ethnic background, offer diversified curriculum to the later for the differences in talents, opportunities and future roles, and raise a generation of people who can think for themselves. Agricultural science graduates according to Aneke and Udensi (2016) are youths who have completed six years at secondary school education, who offered agricultural science as a vocational subject at senior secondary level. In the context of this study, agricultural science graduates are youths who spent six years to study some subjects including agricultural science, wrote agricultural science in the Senior Secondary Certificate Examination (SSCE). If these graduates are exposed to short term training in plantain production, they would acquire the necessary skills which will enable them become competent in plantain production.

Competency, according to Chibuiké and Okafor (2015) are skills which individual needs in a particular job or a particular task. In the view of Olaitan, Eze and Alaribe in Mba (2012) competency involves the acquisition of knowledge, skills and attitude by an individual to perform successfully at a

specified proficiency level in a given task. Mba explained that competency serves as a motivated pattern of knowledge, skills and abilities deployed to undertake a valued job. This study, regards competency as value placed by agricultural graduates as exhibited in their zeal to acquire skills, knowledge and attitude for effectiveness in plantain production. This implies that competency is a measure of potentials that reflect what agricultural science graduate can do in field management activities like mulching, fertilizer application, propping, weeding, pest and disease control. For the purpose of this study, the researcher, concentrated on fertilizer application, propping operation and weeding operation competencies for plantain production.

Mulching as defined by Ibezim (2014) is the act of covering soil surface with such materials as dry grasses, crop residues with the sole aim of conserving the soil moisture. Ibezim (2014) further stated that mulching in plantation protect the soil moisture content and retain the organic composition of the soil. In supporting this, Ndubizu (2015) observed that plantain responds effectively to mulching. Ndubizu added that Mulching combines the positive effects of soil moisture conservation, fertilizer application, weed and erosion control. Such mulching operation competencies include identify sources of mulching materials, gather all grasses from cleared farmland, chop the grasses or materials into bit among others. Mulching will help the farmer carryout fertilizer application.

Fertilizer should be applied a month after planting, or with the first rain, the fertilizer should be applied in a ring form at the base of the plant, and shouldn't be dug or worked into the soil. Plantain require both organic and inorganic fertilizers to produce heavy bunches as recommended by Udoh (2013) that organic manures such as farmyard manures, grasses, animal dungs, although

very bulky are very useful in small-scale plantain production. Fertilizer operation competencies are: apply; (urea, muriate of potash, Nitrogen Phosphorus and Potassium, NPK, farmyard manure), cover the fertilizer lightly with earth apply the quantity measured 5cm away from each stand among others.

After applying fertilizer to plantain plant, it is always necessary to support the plantain plant using bamboo stick or any other form of support called prop. This is done when it starts fruiting. According to Eneh (2017), propping serves to prevent bearing plants from falling over due to the weight of bunches. Eneh stated that plantain being a shallow rooter with heavy fruit bunch tends to bend and experience tip-over (entire corm with roots come out of the ground), Snap-off (corm breaks leaving a part in the ground), doubling (pseudostem breaks) especially with strong winds. Eneh continued that propping under neat the bunch with fork-like structure provides a good support. Such propping operation competencies include; observe the plantain plant with bunch that require propping, carry two or three bamboo stick for support, tie rope to the lateral pole against the two bamboo among others.

For any agricultural activity to be effectively and successfully carried out and to prevent the crops from lavishing in the field, the farmer needs to carry out weed control operations. Ogbodo (2016), noted that weeds are unwanted plants that grow alongside with crop. Iwena (2015), defined weed as a plant growing where it is not desired in such a way that it constitutes a nuisance either to man, livestock or the crops. Iwena further stated that plantain is very sensitive to weed infestation and that poor weed management will result in poor establishment, poor growth and low yield. Ogbodo (2016) pointed that some of the weed control competencies include, use

herbicide to control weed, use a knapsack herbicide sprayer, apply herbicide on weed two or three months after planting, weed with hoe among others. A good weed control activity increases production and reduce the attack of pest and diseases. If agricultural science graduates are exposed to field management competencies in plantain production, the production will be a continuum that is, production interference and job security because the competency in performance will be effectively exhibited.

Job security was described by Ada (2017) as the probability that an individual will keep their job; a job with high level of security is such that a person with the job would have a small chance of becoming unemployed. With reference to his study, job security is an assurance that an individual will keep his/her job without the risk of becoming unemployed. For instance, when business such as business in plantain production experience growth, expansion, there is job confidence and security. This implies that field management competencies required in plantain production have to be identified and one can undertake plantain production as a means of livelihood. In such situation, agricultural science graduates can be retrained by farmers and agricultural extension workers to engage in cultivation and production of plantain and plantain products.

Agricultural extension workers are the trained personnel employed by the government with the aim of disseminating research information and innovations on the improved techniques of farming to farmers, help them to improve on their farming skills and general welfare, as well as help them develop leadership qualities. (Ugwuoke & Ifeanyieze, 2012). Extension workers help to educate farmers on the improved technique of farming, plantain production inclusive which can help to enhance their economic and general welfare. Extension

workers can as well adopt better strategies for skill training of agricultural science graduates who want to go into plantain production. If these competencies are identified, they could be packaged and used for re-training of agricultural science graduates on plantain production. For instance, Onuka (2018), reported that government of Enugu State established skill acquisition centres for skilled jobs like hair dressing, tailoring carpentry among others for equipping youths with skills for work. In those acquisition centres, there seems to be no programme on plantain production for empowering unemployed agricultural science graduates or re-training of farmers in plantain production. The extension workers therefore need to develop better strategies for reaching the youths who are willing to go into plantain production for job security.

Onuka (2018), observed that that the teaching methods mostly used in secondary schools subjects lay much emphasis on the theoretical aspect of crop production, this might be as a result of the inherent value for colonial education which was liberal education that is not skill based. The students are deprived of the practical skills and knowledge that are required in subjects such as agricultural science production activities as recommended in National Policy on Education. After graduation, the students come out half-baked as a result of lack of saleable skills for paid and self-employment. If these competencies are identified, they could be packaged and used for re-training of secondary school graduates on plantain production, hence the need for this study, field management competencies required by agricultural science graduates in plantain production for job security in Enugu State.

Statement of the Problems

It is expected that secondary school students who offered agricultural science subjects on

graduation should have acquired adequate competencies in producing different crops among other things as enriched in their syllabus. Unfortunately, teaching subject such as Agricultural Science in secondary schools does not stress field experiences and skill acquisition. This may be one of the reasons secondary school graduates do not possess required competencies in crop production and plantain in particular. For instance, Udensi (2014) reported that the curriculum of agricultural science in secondary schools was broad and made little provision for mastering of crop production skills. Therefore, teachers could only teach rudimentary knowledge of plantain production to students because of the congestion of the curriculum content and their interest to teach students for passing external examination. The students are deprived of the practical skills and knowledge that are required in subjects such as Agricultural science production activities as recommended in National Policy on Education. After graduation, the students come out half-baked as a result of lack of saleable skills for paid and self-employment.

This lack of saleable skills of secondary school graduates cause them to roam about in the street aimlessly idling away their time, planning and committing one crime or the other such as kidnapping, stealing, robbery and drug addiction among others. Some of them migrate to urban areas in search for white collar job that are not available and if this problem is not addressed, it will increase youth restiveness and other acts of insecurity. While if they are exposed to skills in plantain production, they would be comfortably engaged in it to increase the production and reduce the high cost of the product which has made it not easily affordable by all except the rich and, at the same time, earn their living.

It therefore, becomes necessary that field management competencies in plantain production need to be identified and packaged as a programme for skill acquisition training and re-training of secondary school graduates for job security.

Purpose of the Study

The main purpose of this study was to determine the field management competencies required by agricultural science graduates in plantain production for job security in Enugu State. Specifically, the study sought to determine:

1. Fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State.
2. Propping operation competencies for plantain production required by agricultural science graduates for job security in Enugu State.
3. Weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State.

Research Questions

The following research questions guided the study:

1. What are the fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State?
2. What are the propping operation competencies for plantain production required by agricultural science graduates for job security in Enugu State?
3. What are the weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State?

Hypotheses

The following hypotheses were tested at .05 level of significance:

- Ho₁:** There is no significant difference between the mean ratings of plantain farmers and agricultural extension workers on fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State.
- Ho₂:** There is no significant difference between the mean ratings of plantain farmers and agricultural extension workers on propping operation competencies for plantain production required by agricultural science graduates for job security in Enugu State.
- Ho₃:** There is no significant difference between the mean ratings of plantain farmers and agricultural extension workers on weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State.

Research Method

The study adopted a descriptive research design. Descriptive survey research design according to Nworgu (2015) is one in which a group of people or items are studied by collecting and analysing data from only a few people or items considered to be representative of the entire group. The design was used for the study because of the distribution of the respondents and the researcher made use of polychotomously structured instrument to collect data pertinent to field management competencies required by agricultural science graduates in plantain production for job security in Enugu State. The study was conducted in Enugu State. Enugu State is made up of six agricultural zones namely Agbani, Awgu, Enugu, Enugu-Ezike, Obollo-Afor and Udi. The state is naturally endowed with good

agricultural environment favourable for plantain production.

The population for the study comprised 113 respondents made up of 79 registered plantain farmers and 34 extension workers in the six agricultural zones of Enugu State (source: statistical Entry Unit Enugu State Agricultural Development Programme Office Enugu, 2022). The entire population was used for the study because the population size was manageable.

The instrument for data collection was a structured questionnaire developed by the researcher. The questionnaire contained a total of 20 structured field management competencies items generated from an extensive review of literature and information from plantain farmers. Each competency item had four point response scale of Very Highly Required (VHR), Highly Required (HR), Slightly Required (SR) and Not required (NR) with numerical values of 4,3,2 and 1 respectively. The instrument was subjected to validation by three experts. Two from the Department of Technology and Vocational Education and one from Measurement and Evaluation option in the Department of Computer and Mathematics Education both in Faculty of Education, Enugu State University of Science and Technology. The reliability of the instrument was determined using Cronbach Alpha and a reliability coefficient of .76 was obtained.

A total of 113 copies of the questionnaire were administered to the respondents with

the help of three research assistants who were properly briefed on the content of the questionnaire and its administration to ensure that the questionnaire was properly administered, filled and retrieved. Out of 113 copies of the questionnaire distributed, 106 copies were properly filled, 7 copies were not properly filled and was discarded. It was these 106 properly filled questionnaire that was used for data analysis representing 93.81% return rate. The data collected were analysed using mean with standard deviation. The mean was used to answer the research questions while standard deviation was used to check the closeness of their responses. The t-test was used to test the null hypotheses at .05 level of significance and at the appropriate degree of freedom. The decision rule was based on the principle of real limits of the mean thus:

- Very Highly Required (VHR) 3.50 – 4.00
- Highly Required (HR) 2.50 – 3.49
- Slightly Required (SR) 1.50 – 2.49
- Not Required (NR) 1.00 – 1.49

The null hypotheses were significant where the probability value was less than the .05 significant level at appropriate degree of freedom. Otherwise the null hypotheses was not significant.

Results

Research question 1

What are the fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State?

Table 1: Mean ratings with standard deviation of farmers and agricultural extension workers on fertilizer application competencies for plantain production.

S/N	Fertilizer application competencies for plantain production required include abilities to:	Farmers	Extension workers		Over all		Decision	
		N = 75 X ₁	SD ₁	N = 31 X ₂	SD ₂	X _G		SD _G
1	apply 200kg/ha/yr of nitrogen and 550kg/ha/yr of potassium in six split application	3.15	0.61	3.26	0.58	3.18	0.60	HR

2	apply (urea, muriate of potash, NPK, farm yard manure)	3.16	0.59	3.29	0.52	3.19	0.58	HR
3	cover the fertilizer lightly with earth	3.13	0.60	3.29	0.53	3.17	0.58	HR
4	take a small tomato tin in the fertilizer application	3.12	0.59	3.29	0.52	3.16	0.59	HR
5	apply the quantity measured above 5cm away from earth stand with band placement method	3.12	0.59	3.23	0.67	3.15	0.61	HR
	cluster mean/SD	3.11	0.16	3.22	0.59	3.14	0.62	HR

NOTE: X = mean; SD = standard Deviation; HR = Highly Required.

The analysis of data presented in Table 1 above shows mean rating ranging from 3.15 to 3.19 showing highly required. This means that the respondents viewed the identified five items as highly required. The overall cluster mean of 3.14 further indicates that the items are the fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State. The low standard deviation of 0.62 indicates that the

respondents have similar opinion to the items.

Hypothesis 1

There is no significant difference between the mean ratings of plantain farmers and agricultural extension workers on fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State.

Table 2: Summary of t-test analysis on the mean rating of plantain farmers and agricultural extension workers on fertilizer application competencies for plantain production.

Variables	N	T	df	Sig. (2 tailed)	Mean difference	Std. Error difference	Decision
farmers	75						
extension workers	31	0.921	104	0.359	3.12473	3.39450	NS

The result of t-test analysis in Table 2 shows that the t-value at .05 level of significance and 104 degree of freedom for the items is .921 with a significant value of .359. Since the significant value of .359 is more than the .05 level of significant, the null hypothesis is not significant. This means that there is no significant difference regarding the items on the mean ratings of plantain farmers and agricultural extension workers on

fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State.

Research question 2

What are the propping operation competencies for plantain production required by agricultural science graduates for job security in Enugu State?

Table 3: Mean responses with standard deviation of farmers and agricultural extension workers on propping operation competencies for plantain production.

S/N	Propping operation competencies for plantain production required include abilities to:	Farmers N = 75		Extension workers N = 31		Over all		Decision
		X ₁	SD ₁	X ₂	SD ₂	X _G	SD _G	
6	observe the plantain plant with bunch that require propping	3.12	0.61	3.19	0.60	3.14	0.61	HR
7	carry two or three long bamboo stick for support	3.08	0.65	3.19	0.60	3.61	0.64	VHR
8	tie rope to the lateral pole against the two bamboo	3.63	0.40	3.61	0.46	3.62	0.58	VHR
9	ensure that the poles are placed properly so that it may not be blow by storm	3.13	0.60	3.26	0.51	3.17	0.57	HR
10	place the support on the side where the bunch leans over	3.52	0.61	3.63	0.56	3.65	0.60	VHR
	Cluster Mean/SD	3.03	0.65	3.12	0.61	3.06	0.64	

NOTE: X= Mean; SD =Standard Deviation; VHR =Very Highly Required, HR =Highly Required.

The analysis of data presented in Table 3 above shows that items 7, 8 and 10 have mean ratings of 3.61, 3.62 and 3.65 respectively indicating very highly required while the remaining 2 items ranging from 3.06 to 3.17 indicating highly required. The overall cluster mean of 3.06 reveals that the identified items are the propping operation competencies for plantain production required by Agricultural Science Graduates for job security in Enugu State. The low

standard deviation of 0.64 indicates that the respondents have similar opinion to the items.

Hypothesis 2

There is no significant difference between the mean ratings of plantain farmers and agricultural extension workers on propping operation competencies for plantain production required by agricultural science graduates for job security in Enugu State?

Table 4: Summary of t-test analysis on the mean ratings of plantain farmers and agricultural extension workers on propping operation competencies for plantain production.

Variables	N	T	df	Sig. (2 tailed)	Mean difference	Std. Error difference	Decision
farmers	75						
extension workers	31	0.711	.104	0.479	0.74108	1.04270	NS

The data obtained from the t-test analysis in Table 4 shows that the t-value at .05 level of significance and 104 degree of freedom for the items is .711 with a significant value of .479. Since the significant value of .479 is more than the .05 level of significant, the null hypothesis is not significant. This means that there is

no significant difference with respect to the items on the mean ratings of plantain farmers and agricultural extension workers on propping operation competencies for plantain production required by agricultural science graduates for job security in Enugu State.

Research Question 3

What are the weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State?

Table 5: Mean response with standard deviation of farmers and agricultural extension workers on weeding operation competencies for plantain production.

S/N	Weeding operation competencies for plantain production required include abilities to:	Farmers N = 75		Extension workers N = 31		Over all		Decision
		X ₁	SD ₁	X ₂	SD ₂	X _G	SD _G	
11	use herbicide to control weed	3.52	0.61	3.56	0.51	3.54	0.59	VHR
12	use a knapsack herbicide sprayer	3.11	0.65	3.19	0.60	3.13	0.63	HR
13	apply herbicide on weed two or three months after planting	3.11	0.64	3.19	0.60	3.13	0.63	HR
14	repeat the application after four months of first application	3.04	0.62	3.16	0.58	3.08	0.61	HR
15	measure herbicide correctly and dilute with water	3.07	0.62	3.16	0.58	3.09	0.61	HR
16	weed with hoe	3.08	0.59	3.10	0.65	3.09	0.60	HR
17	use hand picking or pulling of weed method	3.05	0.59	3.10	0.65	3.07	0.61	HR
18	use brushing or slashing with cutlasses method	3.08	0.59	3.10	0.65	3.08	0.60	HR
19	drive herbivores animal into plantation to feed on weeds	3.58	0.58	3.59	0.65	3.58	0.60	VHR
20	plant leguminous cover crops such as centrosema, pueraria and calopogonium to control weeds	3.11	0.61	3.23	0.56	3.14	0.59	HR
	cluster mean/SD	3.18	0.61	3.28	0.59	3.23	3.23	HR

NOTE: X= Mean; SD =Standard Deviation; VHR =Very Highly Required, HR =Highly Required.

The analysis of data presented in Table 5 shows that the items 11 and 19 have mean rating of 3.54 and 3.58 respectively indicating very highly required, while the remaining items mean ratings ranged from 3.07 to 3.18 showing highly required. This means that the respondents viewed the items as highly required. The overall cluster mean of 3.23 further indicates that the items are the weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu

State. The low standard deviation of 0.64 indicates that the respondents have similar opinion to the items.

Hypothesis 3

There is no significant difference between the mean ratings of plantain farmers and agricultural extension workers on weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State?

Table 6: Summary of t-test analysis on the mean rating of plantain farmers and agricultural extension workers on weeding operation competencies for plantain production.

Variables	N	T	df	Sig. (2 tailed)	Mean difference	Std. Error difference	Decision
farmers	75						
extension workers	31	0.921	104	0.359	3.12473	3.39450	NS

NS = Not significant; P = 0.05

The result of t-test analysis in Table 6 shows that the t-value at .05 level of significant and 104 degree of freedom for the items is .921 with a significant value of 3.59. This means that there is no significant difference with respect to the items on the mean ratings of plantain farmers and agricultural extension workers on weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State.

Discussion of Findings

The data collected on the fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State. The findings showed that fertilizer application competencies highly required by agricultural science graduates include abilities to apply (urea, muriate of potash, NPK, farm yard manure), apply 300 kg/ha/yr of nitrogen and 550kg/ha/yr of potassium in six split application, cover the fertilizer lightly with earth among others. The findings were in consonance with the report of Bayeri and Ajayi (2016) who noted that application of appropriate fertilizers make plants grow vigorously and produce large fruits. Iwena (2015) supported this by stating that management practices in plantain production include fertilizer application, mulching, pruning, trimming, pest and disease control.

Moreover, the findings of the study revealed that there was no significant difference on the mean ratings of plantain farmers and agricultural extension workers on fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State. The status of the respondents had no influence on the identified fertilizer application competencies for plantain production required by agricultural science graduates for job security in Enugu State.

The findings revealed the following as the propping operation competencies for plantain production required by agricultural science graduates for job security; ability to observe the plantain plant with bunch that require propping, carry two or three long bamboo stick for support, tie rope to the lateral pole against the two bamboo among others. They had a grand cluster value of 3.06 and standard deviation of 0.64. The findings of the study were in line with Nwobi (2019) that propping operation competencies include the abilities to ensure that the fork is tied together with a rope, place the fork underneath the bunch, place the support alongside the bearing plant, tie the top of the plant to the bamboo. This implies that the identified propping operation competencies need to be acquired by agricultural graduates for plantain production.

The findings showed that there was no significant difference in the mean ratings of

the respondents. This means that the responses of farmers and agricultural extension workers had no influence on the identified propping operation competencies for plantain production required by agricultural science graduates for job security. The findings were in line with Ndubizu (2015), that farmers and extension workers had similar view on the propping operation competencies for effective plantain production. Therefore, the identified propping operation competencies for plantain production are highly required by agricultural science graduates for job security in Enugu State.

The findings of the study revealed that all the weeding operation competencies are highly required by agricultural science graduates for job security. The findings of the study were supported by Ibezin who pointed that field management operations are very important for increasing productivity in farming operation.

Moreover, the findings of the study revealed that there was no significant difference on the mean ratings of the respondents on weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State. The implication of the finding was that the status of farmers and agricultural extension workers had no significant influence on the identified weeding operation competencies for plantain production required by agricultural science graduates for job security. The findings were in consonant with Ogbodo (2016) that farmers and extension workers had similar view on weeding operation competencies to achieve reasonable yield.

Conclusion

The study investigated field management competencies for plantain production required by agricultural science graduate for job security in Enugu State. The study identified the fertilizer application

competencies, propping competencies and weeding operation competencies for plantain production required by agricultural science graduates for job security in Enugu State.

The identified competencies depicted the task and skills in carrying out plantain production work among the agricultural science graduates for job security. The study therefore concludes that the identified competencies may be used to improving the teaching-learning process and competency development among the students in secondary schools in Enugu State. Based on the findings, the secondary school teachers, farmers, extension workers and the government are expected to adopt the identified competencies in the training of students for job security and improving the production of plantain.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Schools should map out demonstration farms where the students will put into practices the identified field management competencies in plantain production.
2. Skill acquisition centres should adopt the identified competencies in retraining farmers and youths who are interested in plantain production.
3. The agricultural extension workers should utilize the identified competencies in the extension services to the young plantain farmers.

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