

BEST PRACTICES NEEDED BY SECONDARY SCHOOL AGRICULTURAL SCIENCE GRADUATES IN OIL PALM (*ELIASE GUINEANSIS*) PRODUCTION FOR NATIONAL DEVELOPMENT

BY

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Abstract

*This research was conducted in Cross River State of Nigeria to determine the best practices needed by secondary school agricultural science graduates in oil palm (*eliaseguineansis*) production for national development. The research adopted a survey design. Four specific purposes of the study guided the work with four corresponding research questions. The population of the study was 499 agricultural science teachers and students. The sample for the study was 260 made up of 60 teachers and 200 students drawn from 12 secondary schools in Boki L.G.A. of Cross River State. The instrument used for data collection was a structured questionnaire developed by the researchers. The instrument was validated by 5 experts. Three experts in agricultural education and two experts in measurement and evaluation from the University of Calabar. The reliability of the instrument was determined by the adoption of Cronbach Alpha statistics which yielded the reliability coefficient of 0.901. The data collected were analyzed using mean and standard deviation. The findings of the study revealed that the secondary school agricultural science graduates require 9 best practices in pre-planting operations, 7 planting operation, 9 post-planting operations and 8 harvesting operations in oil palm production. Based on the finding of the research, the researchers recommended among others that for Nigeria to compete with other countries like Malaysia and Indonesia, the country must return to effective agricultural production and students should visit well established oil palm plantation in their environment to acquire the best practices skills in oil palm production.*

Keywords: Practices; Oil Palm Secondary School; Student; National Development.

Introduction

Palm oil has been an important ingredient in the diet of every Nigerians. Palm oil is the world's largest source of edible oil accounting for 38.5 million tonnes of the globally edible oil and fat production (mpoc 2007). Palm oil is a product extracted from fleshy mesocarp of oil palm fruit (*Elaeisguineensis*). The demand for palm oil is growing globally thus, the crop cultivation serves as a means of livelihood for many rural families and indeed it is in the farming culture of millions of people in the country (Oladipo, 2008).

Oil palm (*Elaeisguineensis*) is one of the economics trees produced in Nigeria. The plant belongs to the family. Due to its economic importance as high yielding sources

of edible and technical oils, the oil palm is now grown as a plantation crop in most countries with high rainfall minimum (1.600mm/yr) in tropical climates within 10° of the equator (Basiron, and Weng, 2004).

The palm bears its fruit in bunches varying in weight from 10 to 40kg. Individual fruit, ranging from 6 to 20gm are made up of an outer skin (the exocarp), pulp (mesocarp) containing the oil in a fibrous matrix; a central nut consisting of a shell (endocarp) and the kernel, which itself contain an oil, quite different to palm oil, resembling coconut oil (Ekine 2008).

The extensive development of oil palm industries in many countries has been

motivated by its extremely high potential productivity. The oil palm gives the highest yield of oil per unit area compared to other crops and produce two distinct oils. Palm oil and palm kernel oil, both of which are important in world trade (Omoti, U. 2004). Oil palm contributes to foreign exchange in Nigeria, because of the reasonable quantity of the oil exported to other countries. (Kei, Mywish, and Duncan, 1997).

Oil palm production requires some practices which must be possessed by the farmer. Practice refers to the universal knowledge and standard procedures for oil palm production. For effective production of oil palm, the best practices should be employed. Best practices in the context of this study, best practices is referred to as the universal standard and procedure needed in the production oil palm. Best practices is also be conceptualized as the utilization of inputs are resources in oil palm production. This involves pre-planting, planting, post-planting and harvesting operations.

According to Basiron (2004) the increasing demand of palm oil and palm oil by products in the industries and related forms calls for expansion and increase in the knowledge on how to increase the average yield of oil palm per hectre for national development.

In the quest for greater and improved oil palm production, new generation of labour for agricultural science graduates have to be trained on the various best practices needed for greater oil palm production. Oil palm is one of the cash crops being taught at the senior secondary school level, it is expected that on graduation, the graduates should be able to establish oil palm plantation for effective production of oil palm; but experience and observation by the researchers

have shown that secondary school graduates cannot establish oil palm plantation and manage it effectively as a result of lack of the best practices in oil palm production.

As a result of the lack of the best practices in oil palm production, the graduates finds it difficult to engage in oil palm production which would have provided them the opportunity to be self-employed and self-reliant. This is also will make the graduates to be unemployed because of high unemployment rate in the society. The consequences of these are that the families of the graduates will be lacking financially and other goods things in life, and also the graduates, as a result of unemployment will be engaged into many anti-social behaviours such as prostitution among the females, arm-rubbery, drug and child trafficking and kidnapping. This will invariably make the society to be in secured. In the quest to solve the above problem, it becomes necessary to determine the best practices needed by the secondary school graduates in agricultural science for production of oil palm for national development.

Purpose of the study

The main purpose of this study is to determine the best practices needed by secondary school agricultural science graduates in oil palm production for national development; specifically, the study sought to determine the best practices in;

1. Pre-planting operations needed by agricultural science graduates in oil palm production for national development.
2. Planting operations needed by agricultural science graduates in oil palm production for national development.

3. Post-planting operations needed by agricultural science graduates in oil palm production for national development.
4. Harvesting operations needed by agricultural science graduates in oil palm production for national development.

Research questions

The following research questions guided the research;

1. What are the best practices in pre-planting operations needed by agricultural science graduates in oil palm production for national development?
2. What are the best practices in planting operations needed by agricultural science graduates in oil palm production for national development?
3. What are the best practices in post-planting operations needed by agricultural science graduates in oil palm production for national development?
4. What are the best practices in harvesting operations needed by agricultural science graduates in oil palm production for national development?

Methodology

This study was carried out in Cross River State. The study adopted survey research design. The population of the study was 499

teachers of agricultural science students. The sample for the study was 260 made up of 60 agricultural teachers and 200 students.

The primary data were collected with the aid of structured questionnaire. Four-point response opinions of Highly Needed (HN), Average Needed, (AN), slightly Needed (SN) and Not Needed (NN) was assigned to each item.

The instrument was validated by five experts, three experts from the Department of Agricultural Education and two from measurement and evaluation from University of Calabar. Means and standard deviation were used to answers the research questions. The decision rule was that any item statement that attained a mean of 2.50 or above was accepted as the best practices needed by secondary school agricultural science graduates in oil palm production, while those below 2.50 were not accepted as the best practices in needed by secondary school agricultural science graduates in oil palm production for national development.

Research question 1:

What are the best practices in pre-planting operations in oil palm production needed by secondary school agricultural science graduates for national development?

Data for answering research question one were presented in table one

Table 1: Mean rating and standard deviation of the teachers and students on pre-planting operation needed by secondary school agricultural science graduates for national development.

S/N	item statement	X	SD	Remarks
1.	Identify improved variety that has high yield.	1.89	0.94	Not needed
2.	Prepare nursery polythene bags	2.93	0.92	Needed
3.	Select site for oil palm plantation	2.57	1.15	Needed
4.	Land preparation for planting oil palm seedlings	2.85	0.99	Needed
5.	Test the soil to determine the fertility level	2.29	0.97	Not needed
6.	Vegetation on the site	2.56	0.97	Needed
7.	Mark the area for the seedlings to be planted in rows	2.84	0.95	Needed

8.	Identify healthy seeds of oil palm for planting	3.04	0.92	Needed
9.	Identify objectives for oil palm production	3.92	0.92	Needed
Grand Mean		2.76	0.97	

Table 1 revealed that items 2,3,4,6,7,8 and 9 had their mean values ranged for 2.57 to 3.92. Each of the mean values was above 2.50 indicating that the 7 items were pre-planting operations needed by secondary school agricultural science graduate in oil palm production for national development items 1 and 5 had their mean values below 2.50, in implying that the item were not needed in pre-planting operation activities in oil palm production. The standard deviation of the 9 items ranged from 0.92 to 1.15 this values

were lost than 1.96; indicating that the respondents were not far from the mean and it each other in their respondents.

Research Question 2

What are the best practices in planting operations needed oil palm production by secondary school agricultural science graduates for national development?

Data for answering research question one were presented in table two

Table 2: Mean ratings and standard deviation of the respondents on planting operation needed in oil palm production by secondary school agricultural science graduates for National development.

S/N	Item statements	X	SD	Remarks
1.	Mark of the farm holes	2.90	0.71	Needed
2.	Determine the depth of planting of seedlings	3.30	0.60	Needed
3.	Determine the distance of palm on the field	3.00	0.78	Needed
4.	Space 9 by 9 by 9 meters apart	2.90	0.71	Needed
5.	Insert the palms seedlings and gently firm the soil around the plant	3.30	0.77	Needed
6.	Intercrop oil palm with yam	3.20	0.60	Needed
7.	Replace vacancies after planting	2.90	0.73	Needed
Grand Mean		3.07	0.7	

Data in table 2 revealed that all the 7 items had their mean values ranged from 2.90-3.30. Each of the value was above the criterion level of 2.50; indicating that all the 7 items were planting operations activities in oil palm production. The standard derivation values of the 7 items ranged from 0.60-0.78. These values indicated that the respondents were not

far from the mean and from each other in their responses.

Research Question 3

What are the best practices in post planting operations needed in oil palm production by secondary school agricultural science graduate for national development?

Data for answering research question one were presented in table three

Table 3: Mean rating and standard deviation of the respondents on post-planting operations needed in oil palm production by secondary school agricultural science graduates for national development.

S/N	Item statement	X	SD	Remarks
1.	Mulch the palm seedlings after planting	3.31	1.05	Needed
2.	Pest and disease control	2.86	1.19	Needed
3.	Determining the type of fertilizers to be applied	2.88	0.93	Needed
4.	Applying fertilizer using the appropriate method	2.91	1.08	Needed

5.	Snraving agro-chemicals on the farm	2.56	0.97	Needed
6.	Weed round the palm to control rodents	2.65	0.99	Needed
7.	Identify weak and stunted seedling with yellow leaves	2.76	0.98	Needed
8.	Map out the space of dead palm for replacement	2.89	1.11	Needed
9.	Prune the palm	3.09	0.89	Needed
Grand mean		2.87	1.02	

Data in table 3 revealed that all the 9 items had their mean values ranged from 2.56-3.31. Each of the value was above the criterion level of 2.50; indicating that all the 9 items were pre-planting operations activities in oil palm production. The standard derivation values of the 9 items ranged from 0.89-1.19. These values indicated that the respondents

were not far from the mean and from each other in their responses

Research Question 4

What are the best practices in harvesting operations needed in oil palm production by secondary school agricultural science graduates for national development?

Data for answering research question one were presented in table four

Table 4: Mean and standard deviation of the response on harvesting operation needed in oil palm production by secondary school agricultural science graduates for national development?

S/N	Item statement	X	SD	Remarks
1.	Harvesting oil palm fruit using cutlass	2.83	1.12	Needed
2.	Recognize matured and ripped palm fruits bunch.	3.01	1.01	Needed
3.	Picklose fruit from the bunches	2.83	1.12	Needed
4.	Gather fresh fruit bunches from the plantation	2.90	1.03	Needed
5.	Sterilize threshed bunches to free the palm fruit from germs	2.93	0.92	Needed
6.	Prunepalm fronds to expose the bunch base to facilitate bunch cutting	2.89	1.11	Needed
7.	Convey the bunches in baskets on the head to the processing site	3.26	0.97	Needed
8.	Handle the fruit carefully to avoid contamination	2.91	1.08	Needed
Grand mean		2.94	1.04	

Data in table 4 revealed that all the 8 items had their mean values ranged from 2.83-3.26. Each of the value was above the criterion level of 2.50; indicating that all the 8 items were pre-planting operations activities in oil palm production. The standard derivation values of the 9 items ranged from 0.92-1.12. These values indicated that the respondents were not far from the mean and from each other in their responses

Discussion of result

The analysis of the data collected showed that the secondary school agricultural graduate required the best practices in the pre-planting operations of oil palm production. The finding agreed with Omoti (2004) who stated that for oil palm to gives the highest yield of oil per

unit area compared to any other crop, farmers requires some practices which must be possessed. He further explained that modern high-yielding varieties developed by breeding programs, under ideal climatic conditions and good management, are capable of producing in excess.

Also the study revealed that the secondary school agricultural graduate required best practices in planting operation of best practices in planting operation of oil palm production. This is in line with Hartley, (1988) who reported that the planting of oil palm require an experts who should be able to determine the depth of planting seedlings, distance of palm on the field. The replacement of vacancies after planting,

setting of the plant and gently firms the soil around the plant and inter-cropping of palm with other crops. These practices can only be recognized and done by experts (Aghalino, 2000).

Furthermore, the research find out that the students required capacity in post-planting operations of oil palm. This discovery is in eterndem with the findings of Ibitoye, S.J. and Onje, S. O. (2013) who stated that oil palm farmers should be capable of weeding, manuring and control disease and pest. He further explained that the ability of the farmer to determine the type of fertilizer to be applied, the use of appropriate method of applying fertilizer and the spraying of agro-chemicals on the palm is highly required as well as the practices of mulching and pruning.

Additionally, the work found that the secondary school students need best practices in harvesting of oil palm fruit. This findings is in line with Aghalino (2000) who reported that it takes an experts to handle the fruit to avoid excessive bruising, conveying the bunch in baskets, pruning palm fronds to expose the bunch base to facilitate bunch cutting, recognizing matured and ripe palm fruit bunches. These practices of harvesting oil palm fruit need one who is knowledge in using appropriate techniques.

Conclusion

There is a serious need for the encouragement of small-scale oil palm production in Nigeria especially Cross River State to increase the domestic supply of palm oil since it has the ability of creating jobs, for the teaming unemployed in the country. Cross River State is blessed with vast land favourable for oil palm production, but the secondary school graduates of agricultural science are not utilizing the opportunity to better their lives

due to lack of the best practices in oil palm production.

This research was designed to determine the best practices in oil palm production required by secondary school agricultural science graduates for national development. The study has found that the secondary school graduates need best practices in pre-planting, planting and harvesting operations in oil palm production.

Recommendations

Based on the finding of the research, the researcher recommended that;

1. Cross River State government should ensure that the agricultural science graduates are given training in pre-planting operations activities in oil palm production.
2. The government should organize conferences, seminars and workshops on plating operations activities, post-planting operation activities, and harvesting operations activities for ineffective oil palm production.
3. The government should organize conferences, seminars and workshops post-planting operation activities for ineffective oil palm production.
4. The government should organize conferences, seminars and workshops on harvesting operations activities for ineffective oil palm production.

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