

**IDENTIFICATION OF SKILLS REQUIRED BY FARMERS FOR
PROFITABLE COCOYAM PRODUCTION IN ANAOCHA
LOCAL GOVERNMENT AREA OF
ANAMBRA STATE**

Arubalueze, C.U. and Obiora, P.C.

**Department of Agricultural Education,
Nwafor Orizu College of Education, Nsugbe.**

Abstract

The study was conducted to identify the skills required by farmers for profitable cocoyam production in Anaocha Local Government Area of Anambra State. Four research questions were developed in consonance with what the study sought to find out. A structured questionnaire was developed and used for data collection. The questionnaire was used for collecting data from 55 respondents, made up of 35 agricultural science teachers and 20 extension agents in Anaocha L.G.A. Anambra State. The data collected were analysed using mean and standard deviation to answer the research questions. Findings from the study indicated that 10 skills were identified as needed in planning for cocoyam production, 21 in planting of cocoyam, 14 in field management of cocoyam, 7 in harvesting of cocoyam. It was recommended that the skills identified by the study should be integrated into skill acquisition centers by Anambra state government for training farmers in cocoyam production for good and functional living.

Introduction

Cocoyam, Taro (*Colocasia esculenta*) is one of most important crops in Nigeria. It has been reported to be the third most important staple root/tuber crop after yam and cassava in Nigeria (Knipscheer and Wilson, 2000, Giacomelli and Leon, 2004). In terms of volume and production, Nigeria is the largest producer in the world, accounting for about 40% of the total production (Chukwu, 2012). Cocoyam is important, not only as food crop but even more as a major source of income for households.

In Nigeria, cocoyam is mostly produced in the eastern region e.g. Anambra, Imo, Enugu and Western region e.g. Osun state. Cocoyam is composed of 70-80% water, 20-25% starch, 1.5 -3 % protein and significant amount of vitamins and its protein content is very high compared with that of other tropical tuber crops (Onwueme, 2002).

Skill according to Okorie (2000) is the habit of acting, thinking and behaving in a specific activity in such a way that the process becomes natural to the individual

through practice. Also Hull (2003) explained skill as well established habits of doing things by people. A person that works productively is skilled because he has acquired the habits of performing a task in an acceptable manner within his job skill. In the context of this study, skill can be regarded as performance activities needed by farmers in cocoyam production on commercial basis for making a living in Anambra state.

Cocoyam is one of the staple food in Anambra state and therefore its production favoured many farmers in the state. However, it is noticed that the farmers in the state engaged in the traditional methods of cocoyam production which lead to low yield. Cocoyam farmers can be helped to obtain high yield through introduction of modern and effective farm technologies and improved varieties by the extension services, which bring about expected result to farmers in Anambra state. The purpose of this study therefore is to identify the skills required by farmers for profitable cocoyam production in Anaocha Local Government Area in Anambra State. Specifically, the study sought to:

- i) Identify the skills required by farmers in the planning of cocoyam production.
- ii) Find out the skills required by farmers in planting of cocoyam
- iii) Identify the skills required by farmers in field management of cocoyam.
- iv) Ascertain the skills required by farmers in harvesting of cocoyam.

Research Design

This study made use of survey research design as explained by Olaitan and Nwoke (2000) as one in which the entire population or representative sample is studied by collecting and analyzing data from the group through the use of the questionnaire. The design was considered suitable since this study solicited information from agricultural science teachers and extension agents on the skills required by farmer in cocoyam production through the use of the questionnaire.

Area of the Study

The study covered Anaocha Local Government Area. Anaocha is a local government area of Anambra state, south-central Nigeria; towns that make up the local government are; Agulu, Neni, Ichida, Adazi-Ani, Adazi-Enu, Adazi Nnukwu, Akwaeze, Nri, Obeledu. It is bounded on north by Awka South Local Government Area, on the South by Idemili North and South Local Government Area, on the East by Aguata Local Government Area and the west by Njikoka Local Government Area.

The local government naturally endowed with good agricultural environment favourable for cocoyam production. Majority of those involved in cocoyam production are peasant farmers who can supply only in small quantity. Where as some neighbouring local government depend mainly on that local government.

Population of the Study

The population of the study is made up of all secondary school agricultural science teachers and extension agents in Anaocha Local Government Area of Anambra state. A total number of thirty-five (35) agricultural science teachers and twenty (20) extension agents were used in Anaocha Local Government Area of Anambra state.

Sample and Sampling Techniques

There are nine (9) public secondary schools in Anaocha Local Government Area of Anambra state. These public secondary schools were made up of JSS 1 to SS III classes and they are offering agricultural science at all level. Amongst, school teachers from JSS classes to SS classes were selected and extension agents in Anaocha Local Government Area were also selected using simple random sampling technique.

Instrument for Data Collection

The instrument used for data collection in this study was a structured questionnaire. The questionnaire items were generated based on the information gathered from the review of related literature. The questionnaire was made up of two sections namely; section one and section two. Section one solicited information on personal data of the respondents, while section two was structured into four areas of skills in cocoyam production required by cocoyam farmers, for profitable cocoyam production. The areas were planning for cocoyam production, planting, field management, and harvesting the produce.

The response for the skills items were as follows:

Highly needed – (HN) = 4

Average Needed – (AN) = 3

Slightly Needed – (SN) = 2

Not Needed – NN = (1)

Validation of the Instrument

The instrument was subjected to face validation. Two lecturers in agricultural education department validated the instrument. They were served with a copy each of the questionnaire and were requested to react to the questionnaire items by identifying ambiguous statements or wrongly structured statements.

They were also requested to identify skills that were not required and add relevant others that had been omitted by the researcher. The experts corrections and suggestions were incorporated into the final instrument developed.

Reliability of the Instrument

Reliability helped to ascertain the consistency of the respondents in their various opinions on the items in an instrument on different administration. Osegbo and Ifeakor (2008) described reliability of a test instrument as the consistency of the test in measurement.

The questionnaires were collected and analyzed using Pearson's product moment correlation coefficient to determine the reliability coefficient of the instrument. The correlation coefficient obtained was 0.88.

Method of Data Collection

The questionnaire was distributed by hand to the respondents.

Method of Data Analysis

The data collected through the questionnaire were analyzed using mean and standard deviation to answer the research questions.

The values attached to the response options of the questionnaire were

- A. Highly needed – (HN) = 4
- B. Average Needed – (AN) = 3
- C. Slightly Needed – (SN) = 2
- D. Not Needed – (NN) = 1
- E. The mean for the values was $\frac{4+3+2+1}{4} = 10/4 = 2.50$

Using interval scale the lower limit of the mean was 2.50. Any item with a mean score below 2.50 was regarded as not needed.

Results

Research Question 1: What were the skills required by the farmers for planning cocoyam production?

Table 1: Mean rating of responses of agricultural science teachers and extension agents on the skills required by farmers for profitable cocoyam production in Anaocha Local Government Area, Anambra State.

S/N	Items	X	SD	Remark
1	Formulate specific objective for the farm	3.76	0.54	Required
2	Review the objectives periodically	3.38	0.58	Required
3	Decide on the farming and cropping system to adopt on the farm.	3.65	0.54	Required
4	Budget for the farm	3.75	0.47	Required
5	Plan the farm around the existing special market and land productivity.	3.49	0.61	Required
6	Plan the procurement of farm input.	3.87	0.40	Required
7	Select soil conservation practices for application in the farm	3.40	0.58	Required
8	Specify the specie of cocoyam to be produced	3.60	0.54	Required
9	Select appropriate equipment for specific farm operation.	3.59	0.59	Required
10	Schedule storing or timing for getting the farm produce to market during the highest price period.	3.79	0.43	Required

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Table 1 showed that the 10 skill items had their mean ranged from 3.38 to 3.79. This indicated that their means were above cut-off point of 2.50. This observation implies that all the skills were required by farmers for profitable cocoyam production management.

The standard deviation of the skill items ranged from 0.43 to 0.61 this showed that the respondents were close to one another in the responses and that they were not very far from the mean.

Research Question 2: What were the skills required by farmer in planting of cocoyam?

Table 2: Mean ratings of responses of agricultural science teachers and extension agents on the skills required by farmers in planting cocoyam in Anaocha Local Government Area, Anambra state.

S/N	Items	X	SD	Remark
i	Nursery preparation			
1	Establish a nursery for raising cocoyam planting material.	2.63	1.09	Required
2	Plant in nursery the cut piece of the apical portion of the corm with lower petiole still attached at very close spacing.	2.65	1.06	Required
3	Plant in nursery the uprooted suckers at very close spacing.	2.65	1.11	Required
4	Plant pieces from stored corms, cormels and suckers in the nursery at very close spacing.	2.66	1.12	Required
5	Select appropriate seedlings for planting.	3.79	0.50	Required
ii	Planting with nursery			
6	Clear the field of vegetation	3.92	0.31	Required
7	Treat the soil and planting material with captan fungicide for effective controlling of soft rot disease.	3.58	0.57	Required
8	Fumigate the soil infested with root knot nematodes pest with a nematicide such as nemagon.	3.37	0.67	
9	Till the soil into ridges or heaps.	3.66	0.50	Required
10	Select cocoyam species to plant based on yield weather condition and soil type.	3.62	0.51	Required
11	Select small corms and cormels for planting	3.48	0.59	Required
12	Cut large corms into setts for planting.	3.42	0.64	Required
13	Cut a piece of the apical portion of the corm with the lower petiole still attached.	3.50	0.64	Required
14	Leave the cut setts or pieces for few days to enable the surface to dry before planting.	3.31	0.64	Required

15	Treat the surface of the cut sets with the fungicide and insecticide or wood ash.	3.51	0.57	Required
16	Plant at the onset of the rainfall.	3.54	0.58	Required
17	Plant to specification especially with the eyes of corms or cormels facing up.	3.62	0.55	Required
18	Deep plant corms and cormels.	3.34	0.77	Required
19	Insert the corms or cormels into the center of the ridge or heap with modified cane planter or tuber planting machinery where available.	3.22	0.64	Required
20	Check for the sprouting through observation of the shoot above the ground.	3.57	0.52	Required
21	Replace decayed corms and cormels.	3.49	0.55	Required

Table 2 showed that the 21 skill had their means ranged from 2.63 to 3.92. This indicated that their means were above the cut-off point of 2.50. This observation implied that all the skills were needed for planting of cocoyam in Anaocha Local Government Area, Anambra state.

The standard deviation of the skill items ranged from 0.31 to 1.12. This showed that the respondents were close to one another in the responses and that they were not very far from the mean.

Research Question 3: What were the skills required by farmer in field management of cocoyam?

Table 3: Mean ratings of responses of agricultural science teachers and extension agents on the skills required by farmers in field management of cocoyam in Anaocha Local Government Area, Anambra state.

S/N	Items	X	SD	Remark
1	Mulch the cocoyam farm after sprouting of the crops.	3.16	0.84	Required
2	Apply first dose of fertilizer after planting.	3.32	0.65	Required
3	Place compost of farm yard manure in the planting holes.	3.31	0.68	Required
4	Weed the cocoyam farm at the early state of growth	3.66	0.50	Required
5	Apply pre-emergence herbicide such as TCA used with diuron or alterzine for effective weed control.	3.19	0.79	Required
6	Earth up the cocoyam plant after fertilization and weeding.	3.12	0.47	Required
7	Prune the over grown leaves at the base of cocoyam plant.	3.32	0.70	Required
8	Fold the over spread leaves to improve the yield of the cormels if the cocoyam is for cormel	3.19	0.82	Required

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	production.			
9	Weed again the cocoyam farm land.	3.37	0.69	Required
10	Apply second dose of fertilizer as corm enlargement commences.	3.35	0.70	Required
11	Earth up the cocoyam farm again.	3.29	0.74	Required
12	Apply copper based fungicide such as copper oxychloride and tribasic copper sulphate for controlling diseases.	3.24	0.73	Required
13	Spray with a systemic insecticide for controlling insects pests of cocoyam.	3.38	0.63	Required
14	Practice crop rotation if it is not sole cropping establishment.	3.62	0.54	Required

Table 3 showed that the 14 skill items had their means ranged from 3.16 to 3.62. This indicated that their means were above the cut-off point of 2.50. This observation implied that all the skills were required for field management of cocoyam in Anaocha Local Government Area, Anambra state.

The standard deviation of the skill items ranged from 0.47 to 0.84. This showed that the respondents were close to one another in the responses and that they were not very far from the mean.

Research Question 4: What were the skills required by farmers in harvesting of cocoyam?

Table 4: Mean ratings of responses of agricultural science teachers and extension agents on the skills required by farmers in harvesting of cocoyam production in Anaocha Local Government Area, Anambra state.

S/N	Items	X	SD	Remark
1	Check for maturity through yellowing of the leaves and the die back of the top.	3.53	0.52	Required
2	Harvest cocoyam 8-12 months after planting	3.50	0.59	Required
3	Loose the soil around the base of the plant with a digging instrument.	3.57	0.54	Required
4	Pull the plant gently to avoid bruising the corms or cormels.	3.67	0.51	Required
5	Dig out the cormels that remain in the soil	3.64	0.52	Required
6	Pick manually the corms and cormels	3.69	0.50	Required
7	Pack the corms in heaps for future use.	3.46	0.84	Required

Table 4 showed that the 7 skill items had their means ranged from 3.46 to 3.69. This indicated that their means were above the cut-off point of 2.50. This observation

implied that all the skills were required for harvesting of cocoyam in Anaocha Local Government Area, Anambra state.

The standard deviation of the skill items ranged from 0.51 to 0.84. This showed that the respondents were close to one another in the responses and that they were not very far from the mean.

Discussion

From the result of this study, it was observed that the ten items for skills requirement by farmers for planning cocoyam production were of great importance. The result is in agreement with the findings of (Olaitan and Mama (2001) who stated that planning of any farm operation should include the following activities: formulate the specific objectives for the farm, decide on the farming and cropping systems to adopt on the farm; plan for the procurement of farm inputs and so on.

The findings on the skills requirement for planting cocoyam revealed that 21 skills identified by the respondents are needed by farmers. The findings of the study is in consonance with Onwueme and Sinha (2002) who recommended that adequate cocoyam planting materials can be raised by nursery preparation abilities such as establishing a nursery for raising cocoyam planting materials in a well watered location and so on.

It was also found out that the respondents indicated that the skills required by farmers in field management of cocoyam were of great importance. The findings above agree with specification of Chinaka and Anne (1998) when recommended that for cocoyam management, mulch should be spread on the cocoyam farm after sprouting.

Findings from the study also revealed that seven skills for harvesting cocoyam were required by farmers. The result is in line with Onwueme and Sinha (2002) who reported that matured cocoyam are harvested with the following skills, checking for maturity through yellowing of leaves and die back of the top, harvesting cocoyam 8 - 12 months after planting, loosening the soil around the base gently to avoid bruising the corms or cormels and other released skills.

Conclusion

Anambra state government needed more hands in commercial production of cocoyam, which is an interstate export crop. There are many idle and unskilled farmers who could be trained in the skills required for employment in cocoyam production. The study had therefore, made the following contributions to the knowledge and skills required for cocoyam production.

1. It had provided information to the farmers on skills they need for profitable cocoyam production.
2. It had provided information to skill acquisition centers, administrators which required skills in cocoyam production.

3. The information could also guide the government on which directives, to give to the skill acquisition centre on the training of youths and farmers for cocoyam production

Recommendations

The following recommendations were made for implementation.

- (1) The identified skills in this study should be packaged by the government and integrated into skill acquisition centers where it could be used for training interested unemployed in cocoyam production and processing.
- (2) The findings of the study should be made available to unemployed youths by the government through the media. This could help the youths to enroll in skill acquisition centers for training in skills for cocoyam production that will enable them gain employment.

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