



AWARENESS AND UTILISATION OF CASSAVA PRODUCTION TECHNOLOGIES AMONG FARMERS IN IMO STATE, NIGERIA

Nwaobiala, C. U. and Anyanwu, C. G.

Department of Rural Sociology and Extension, Michael Okpara University of Agriculture Umudike, Abia State, Nigeria

Correspondence contact details: cunwaobiala@gmail.com, chidexg@yahoo.com; +234 8061636932

ABSTRACT

The study examined farmers' awareness and utilisation of cassava production technologies in Imo State, Nigeria. A multi-stage random sampling procedure was used to select one hundred and twenty (120) cassava farmers. Data for the study were collected through a structured questionnaire and analyzed with descriptive statistics such as: frequency counts, mean scores and percentages and Pearson product moment correlation analysis (PPMC). The result reveal that 60.0% of the respondents were females, 55% were married with mean household size and farm size of 4.3 persons and 1.3 hectares respectively, while 45.83% had monthly contact with extension. Awareness was high (80.83%) among respondents and they utilised land preparation and ridge/mound making ($\bar{X}=2.8$), improved cassava cuttings, fertilizer application and weeding at intervals ($\bar{X}=2.7$), time of harvest($\bar{X}=2.6$), while pest and disease control and planting date and spacing had mean ratings of 2.4 respectively. The utilisation index of cassava production technologies was of 86.7%. The result of PPMC analysis ($r=1.02$) shows there was no significant difference between the farmers' levels of awareness and utilisation cassava production technologies in the study area. Increased extension contacts, farmers' access to and subsidy on farm inputs were advocated for effective utilisation of cassava production technologies in the study area.

Keywords: Awareness, technology, utilisation, cassava, farmers

INTRODUCTION

Nigeria has consistently maintained the leading position as world largest producer of cassava in recent years with an annual production record of 38.7 million metric tons (Food and Agricultural Organization, 2016). Cassava (*Manihotesculenta Crantz*) is an indispensable staple food for over 500 million people in tropical Africa but particularly in West Africa sub-region and a major source of energy with very high food security value similar to most cereal crops (Achinewhu and Onwuama, 2002). Cassava has a high income generating potential and can enable resource poor small holder producer to improve livelihood once they adopt and use appropriate production, processing and marketing opportunities (Ezedinma, 2007). There are numerous ways of processing and consuming cassava depending on locality. Cassava and its products hold a position of primary food security producer in Africa, especially in Nigeria. This is due to its adaptation to a wide range of production and environmental conditions including flexible planting, harvest cycles, diseases tolerance and processing. Alternative uses of cassava through value addition has resulted in emergence of wide food recipes from cassava through processing which involves the conversion of edible food to another form more acceptable or convenient to the consumer (Nwaobiala, Isiocha and Nwachukwu, 2009; Okoroafor and Nwaobiala, 2014). Cassava has been identified to promote agro-enterprises development in Nigeria and supports the National Agricultural Transformation Agenda (ATA) through market and value chain development and investment to unlock

growth opportunities, food security, jobs and income creation, value addition and competitiveness (Gwera, 2009).

National Root Crops Research Institute (NRCRI) Umudike and International Institute of Tropical Agriculture (IITA) Ibadan, has developed cassava varieties that has the potential to be disease tolerant, ability to survive under moisture stress and high yielding (National Root Crops Research Institute, 2012). Udealor and Asiegbu (2006) reported high cassava yield from use of improved varieties with suitable cultural practices. The rating of Nigeria as the world's leading producers of cassava may be due to the cultural and agronomic practices required for cassava cultivation through proper extension services. The cassava recommended practices include; site selection, ridging/mounding, use of improved cassava cuttings, use of fertilizer, herbicides application, use of insecticides, spacing, planting date and time of harvest(NRCRI, 2012).The awareness of these technologies is to ensure that these crops can be put to wider uses in the home, for income generation and possibly for export purposes. However, ever since the massive dissemination of these technologies to farmer groups in the agro-ecological zones (Abia, Akwalbom, Anambra, Cross River, Enugu, Ebonyi and the Imo States, farmers adoption and utilisation of improved production technologies has increased output and income in turn alleviates poverty (NRCRI, 2012;Nwaobiala and Nwosu, 2014).Awareness, information and innovation which are intended to improve agricultural production should be disseminated to farmers and ultimately meet their



needs. However, variations exist on relevant production technologies needed by farmers in Nigeria (Banmeke and Olowu, 2005; Sabo, 2007).

Various reports indicated that yield levels achievable in small farmers' farms have continued to be far below the yield levels achievable at agricultural research stations in Nigeria (Akoroda, 2011). There are clear indications that a gap still exist between levels of awareness and utilisation of cassava production technologies in the study area, despite all the efforts by extension delivery outfits in the country to disseminate improved agricultural innovations. In view of the above stated facts, this study was undertaken to analyze awareness and utilisation of cassava production technologies among farmers in Imo State, Nigeria

Specific Objectives were to;

- i. describe socioeconomic characteristics of farmers' in the study area.
- ii. ascertain levels of awareness of cassava production technologies by farmers in the study area, and
- iii. ascertain levels of utilisation of cassava production technologies by farmers in the study area.

Hypothesis stated for the study is that there is no significant relationship between awareness and utilisation of cassava production technologies among farmers in the study area.

METHODOLOGY

The study was carried out in Imo State. The state lies within latitudes 4° 45'N and 7° 15'N, and longitude 6° 50'E and 7° 25'E. It occupies the area between the lower River Niger and the upper and middle Imo River. The state is bounded on the east by Abia state, on the west by River Niger and Delta state; and on the north by Anambra State, while Rivers state lies to the south. The state is located within the rainforest belt of Nigeria, and the temperature ranges between 20° C and 30° C. The state is made up of 27 Local Government Areas (LGAs) and three Agricultural zones of Okigwe, Owerri and Orlu.

A multistage random sampling technique was adopted in the study. Purposively ADP contact farmers who were involved in cassava cultivation were chosen for the study. First, the three agricultural zones that make up Imo state namely; Owerri, Orlu and Okigwe were selected for the study. First, 2 blocks each was randomly selected from the three agricultural zones to give a total of 6 blocks (Owerri – Owerri North and Owerri South blocks: Orlu – Orlu and Nkwerre blocks and Okigwe – Obowo and Isiukwuato blocks). Also, 2 circles each were randomly selected from the selected blocks which gave a total of 12 circles. Finally, ten cassava farmers each were randomly selected from each of the selected circles to give a

sample size of 120 cassava farmers. Descriptive statistics such as frequency counts, percentages and means were used to analyze the objectives, while the hypothesis was tested with Pearson product moment correlation analysis (PPMC).

Measurement of variables

The levels of awareness of cassava production technologies in the study area were operationalised by asking the farmers to indicate whether they were aware of the stated cassava production technologies with response options of "Yes" and otherwise "No". The mean awareness percentage was obtained by adding individual percentages of the cassava production technologies and dividing by number of technologies. Furthermore, the percentages were shaped and categorised with awareness ratings;

1 – 66% = low Awareness

67 – 100% = High Awareness

The levels of utilisation of cassava production technologies was captured using a 3-point Likert type rating scale namely; always=3, occasionally = 2 and never = 1. The benchmarks were obtained thus; 3+2+1 = 6 divided by 3 to give 2.0. Mean scores of 2.0 and above implied utilisation and below no utilisation of cassava production technologies.

The mean was categorised using the following decision rule:

1.00- 1.50 (low)

1.51- 1.99 (moderate)

2.0 and above (high)

The utilisation indices of the respondents were calculated by dividing the total mean utilisation score by 3 – point Likert type rating scale.

RESULTS AND DISCUSSION

Socioeconomic characteristics – The socioeconomic characteristics of respondents are shown in Table 1. The result reveals that a high proportion (60.0%) of the respondents was females, while 40.0% were males. This result is in tandem with the findings of Ejechi (2015) who found that female farmers dominated cassava farming in Nassarawa state, Nigeria. The result also shows that 55% of the respondents were married, with mean ages of 51.2 years. The implication of this result is that the farmers were not energetic and productive in cassava farming activities. The ages are considered to be responsible to take any rational decision in the uptake and use of any innovation/technology. The mean household size for the farmers was 5.3 persons with a farm size of 1.3 hectares. Household size in turn provides cheap labour for agriculture and other remunerative activities. The result however, agrees with Onuk, Tochukwu, Agwu, and Ajibo (2013), as they found household labour providing farm power needs of



farmers in Enugu state, Nigeria. The relative small size of the farmers may be as a result of the land tenure system prevalent in the country. The result agrees with (Abugu *et al.*, 2013) who reported that majority of farmers in south east Nigeria are small scale farmers, on the average cultivate less than 2 hectares of land. A moderate proportion (45.83%)

of the respondents had a monthly contact with extension. Farmers' contact with extension has proven to increase agricultural output through dissemination of improved technologies. The result agrees with Ajala, Ogunjimi and Farinde (2013) as they obtained a similar result among cassava farmers in Oyo state, Nigeria.

Table 1: Distribution of respondents by socioeconomic characteristics (n = 120)

Variables	Frequency	Percentage	Mean
Gender			
Male	49	40	
Female	71	60	
Age (years)			
20 – 30	6	5.00	
31 – 40	15	12.50	
41 – 50	32	26.67	51.2 years
51 – 60	47	30.17	
61 – 70	20	16.66	
Marital Status			
Single	11	9.17	
Married	66	55.00	
Divorced	4	3.33	
Widowed	34	28.33	
Separated	5	4.17	
Household Size (numbers)			
1 – 3	33	27.50	
4 – 6	53	44.17	5.3 persons
7 – 9	19	15.83	
10 – 12	15	12.50	
Farm Size (hectares)			
0.1 – 1.0	44	36.67	
1.1 – 2.0	62	51.67	1.3 hectares
2.1 – 3.0	14	11.66	
Extension Contact (numbers)			
1 – 2	55	45.83	
3 – 4	29	25.84	
No Contact	34	28.33	

Source: Field Survey, 2015

Awareness of cassava production technologies

Data on Table 2 shows that majority (95.8%) of the respondents were aware of fertilizer application while 95% were aware of site selection/land clearing and use of improved cassava varieties, whereas majority (93.3%) that were aware of ridge/mound making. The farmers (84.16%) were aware of weeding at intervals,

88.3% of them time of harvest, while 79.16%, were aware of pest and diseases control and planting date and spacing (77.5%). Ugwoke, Mathew-Njoku, Anaeto and Okereke (2009) affirmed that awareness of any given technology facilitates adoption and utilisation, which translates to increased output and income for farmers.

Table 2: Distribution of respondents by levels of awareness of cassava production technologies

Cassava production technologies	Aware		Unaware	
	Frequency	Percentage	Frequency	Percentage
Site selection/ land clearing	114	95.0	6	5.0
Ridge/mound making	112	93.3	8	6.7
Use of improved cassava cuttings	114	95.0	6	5.0
Planting date and spacing (1mx1m at angle 45°)	93	77.5	27	22.5
Fertilizer application (rate and time of application)	115	95.8	5	4.2
Pest and disease control	95	79.2	25	20.8
Weeding interval	101	84.2	19	15.8



Cassava production technologies	Aware		Unaware	
	Frequency	Percentage	Frequency	Percentage
Time of harvest	100	83.3	20	16.7

Source: Field Survey 2015

The result on the categorisation of farmers' levels of awareness of cassava production technologies (Table 2b) indicates that cassava farmers had high awareness (80.8%) of the technologies. Since majority of the farmers have high level of awareness of these technologies, they have the propensity of adopting and utilising the

technology. This finding is in consonance with Akinbile, Akwiwu and Alade (2014) that awareness of innovation gives a high probability that it would be adopted. Therefore, such innovation if embraced by the farmers; will further improve their production and a livelihood.

Table 2b: Categorisation of farmers levels of awareness of cassava production technologies

Levels/categorisation (%)	Frequency	Percentage
Low 1 – 66	23	19.2
High 67 – 100	97	80.8

Source: Field Survey 2015

Utilisation of cassava production technologies

The distribution of respondents according to levels of utilisation of cassava production technologies is shown in Table 3. The result indicate that majority (71.7%) of the respondents always utilised site selection/land clearing and ridge/mound making with the mean scores of 2.8 respectively. Again, (88.3%), 79.2% and 72% of the respondents always utilised improved cassava cuttings, fertilizer application and weeding technologies respectively with mean score 2.7. Furthermore, 53.5% and 52.5% of the farmers

always and occasionally utilised pest and disease control and planting spacing with the mean utilisation score of 2.4. The grand mean utilisation score for cassava production technologies was 2.6, indicating high utilisation with an index of 0.867, meaning that the farmers utilised 86.7% of these technologies. Nwawuisi, Okoye and Odaji (2007) obtained a similar result among farmers that adopted and utilised TMS 30211 and TMS 3001 cassava varieties in Ebonyi state, south-east Nigeria.

Table 3: Distribution of Respondents by levels of utilisation of cassava production technologies

Cassava Production Technologies	Always	Occasionally	Never	Total	Mean utilisation score
Site selection/ land clearing	98(71.66)	21(17.50)	1(0.83)	337	2.8
Ridge/mound making	98(71.66)	21(17.50)	1(0.83)	337	2.8
Use of improved cassava cutting	106(88.33)	14(11.67)	0(0)	318	2.7
Planting date and spacing (1m x 1m at angle 45 ⁰)	53(44.17)	63(52.50)	4(3.33)	289	2.4
Fertilizer application	94(79.17)	22(18.33)	2(1.67)	328	2.7
Pest and disease control	62(51.67)	46(38.33)	12(10)	290	2.4
Weeding interval	83(72.00)	35(29.13)	2(1.67)	321	2.7
Time of harvest	63(52.50)	55(45.83)	2(1.67)	298	2.5
Grand Mean					2.6
Utilisation Index					0.867

Source: Field Survey, 2015

Relationship between awareness and utilisation of cassava production technologies

The results in Table 4 show the relationship between awareness and level of utilisation of cassava production technologies in the study area. The result reveals a correlation local government areas of 1.02, indicating no positive relationship between awareness and utilisation of cassava production technologies in the study area

Therefore, the null hypothesis which states that there is no significant relationship between awareness of cassava production technologies and farmers' level of utilisation is hereby accepted. This result is in consistent with Okanade, Olaniyi and Ogunleye (2005) who obtained a similar result among cassava farmers in Surulere Local Government Area of Oyo State, Nigeria.



Table 4: PPMC analysis of awareness and utilisation of cassava production technologies in

Variables	Coefficient	Correlation(r^2)
Awareness	0.134	
Utilisation	0.128	1.02
Sample Size	120	

Source: STATA 4A Result

CONCLUSION AND RECOMMENDATIONS

The study revealed that respondents were aware and utilised fertilizer application, site selection /land clearing, use of improved cassava varieties, ridge/mound making, weeding at intervals, time of harvest, pest and diseases control and planting date and spacing. The study showed no significant difference between awareness and utilisation of cassava production technologies in the study area.

The study therefore recommends

- i. Need for increased extension contacts to create awareness of cassava production technologies among farmers in the study area.
- ii. Timely distribution of high yielding cassava varieties is advocated in order to increase output. This is informed by the time bound nature of farming.
- iii. Since there was the utilisation of cassava production technologies, farmers should have access to fertilizers, improved cassava cuttings, herbicides, credit and subsidy in order to encourage effective utilisation of the technologies.

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