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Perceptions of Factors Affecting Adoption of Sustainable Agricultural Practices Among Cassava Farmers in Akwa Ibom State, Nigeria

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ABSTRACT
The study assessed factors affecting adoption of sustainable agricultural practices among cassava farmers in Akwa Ibom State, Nigeria. Primary data were collected with the aid of a structured questionnaire and responses recorded during focus group discussion. A total of 100 farmers were selected for the study using multi-stage sampling technique. The data were analyzed using descriptive and inferential statistical tools. Findings revealed that majority (55.0%) of the respondents were female while 45.0% were male. A greater per cent (39.2%) of the respondents were within their productive age bracket of 40-50 years with mean age of 38.4 years. With regards to factors affecting adoption of the sustainable agricultural practices, only four (4) variables out of ten (10 variables) showed high hindering constraints. These were; lack of awareness ($\bar{x}$=3.75) inadequate organic materials ($\bar{x}$ = 3.66), lack of technical know- how ($\bar{x}$ = 3.31) and non-credit facilities (($\bar{x}$ = 3.01). Logit regression analysis revealed that age and years of farming experience were the major constraints. The study recommended need for capacity building by training and re-training of extension workers and farmers organizations to work towards increasing farmer's awareness on the importance of SAP in order to increase their productivity.
Keywords: Adoption, Sustainable, Agricultural practice, Cassava Farmers

INTRODUCTION

Cassava (*Manihot esculenta)* is one of the most popular food crops grown in the Southern part of Nigeria, specifically in the Niger Delta region. It is one of the widely consumed root crops in the country. Cassava root can be processed into granulated substance called "garri" that is consumed by almost every Nigerians. Cassava and its derivatives also has excellent potentials in livestock feed formulation, textile industry, plywood, paper, brewing, chemicals, pharmaceutical and bakery industries (Sanni *et al.*,2008; Adebowale *et al.*,2008). The leaves are edible while the root is a good source of ethanol and is rich in

minerals, vitamins, starch and protein (Adegbola *et al.*, 1978; IITA, 1990; Smith, 1992; Ravindran, 1992). The crop is propagated by stem and usually planted in flat land, ridges or moulds (Okeke, 1989). Cassava is used to prepare tapioca which is a special delicacy that is widely consumed among the Efik's and Ibibio's tribes in the South-South Zone of Nigeria (Oyewole *et al.*,2003; Adebowale *et al.*,2008). Following the important of cassava to the Nigerian economy, the Presidential Initiative on Cassava Production in Nigeria was inaugurated in 1999 with the aim of achieving on annual basis five billion dollars from export of cassava (Presidential Initiative on Cassava Reports, 2003). Thus, with these, cassava production capacity needs to be increased such that rising demand will be met. One of the ways by which this could be achieved is to improve the profits accruing to the producers (Awoyinka, 2009).

With the rapid increase in Nigeria's population, there is a reduction in the available land space for farming and consequently reduced food production. Iheke and Onyenorah (2012) reported that out of the approximately 2,976 million hectares of total land area in Nigeria, 2,145 million hectares (72%) are faced with different food production constraints such as erosion, acidity, steeply slopes, low fertility, shallow and stony, saline and poorly drained soils). Out of these areas, about 490 million hectares are affected by different types of hazards that include over cropping, over grazing, deforestation, inappropriate agricultural practices and over exploitation. It has been further noted that poor and inappropriate soil management are the main causes of physical, chemical and biological degradation of cultivated land (Adediji, 2000 in Jimoh, and Ifabiyi, 2013; Fakayo, 2000; Oyekale, 2008).

Akwa Ibom State is one of the most densely populated States in Nigeria with densities as high as 634 persons per square kilometre and with 87.89% of its population being rural dwellers (National Population Commission (NPC, 2006). As a result they are faced with constraints like increased expenditure on land, cultivation, non-availability of inorganic fertilizers, agrochemicals and transportation and other farm inputs (Bassey, 2012).

All these factors have major impact on crop production, leading to food and fibre insufficiency as well as nutrition related issues (Nwachukwu and Nnadozie, 2011). Ndem (2011) reported that crop performance in the study area is experiencing reduction in all ramifications though the task of producing enough food for the teeming population has received considerable policy attention. Nevertheless, the production rate of crop is far below the population growth rate with adverse consequences on the State's food situation (Umoh, 2006).

The situation is not different in the study area; the resulting effect of this imbalance is malnutrition, poverty and deteriorating standard of living. To avert this prevailing situation, farmers have to use different intense environment friendly technologies to obtain optimum crop growth, to increase yields and improve their income.
Therefore, the objectives of this paper were to: identify the socio-economic characteristics of the cassava farmers in the area, assess the factors militating against adoption of sustainable agricultural practices in the area.

METHODOLOGY

The study was conducted in Akwa Ibom State, The state lies between latitude 4 ^{o} 31$^{"}$ and 5 ^{o}31" North and longitudes 7^{o} 35$^{"}$ and 8^{o} 35"East; occupies a total land area of 7,245,935km2; and has an estimated population of 3,920,208 (NPC, 2006). Data used for the study were primary data and were obtained from cassava farmers from three (Abak, Etinan and Uyo)

out of six Agricultural Development Program (ADP) Zones in the State. Frequencies and percentages were used to analyse the socioeconomic characteristics of the respondents. Collated data were analyzed with the aid of descriptive and inferential statistical tools.

Sampling Technique/ Analytical Technique

A multi-stage sampling technique was adopted in the study. At the first stage, a simple random sampling technique was used to select three (3) agricultural zones from Akwa Ibom State out of her six (6) ADP zones; at the second stage simple random sampling technique was used to select 10 extension blocks from each of the zones, the third stage was a purposive selection of two (2) cells from each of the selected 10 blocks giving a total of 20 cells. Finally, five (5) cassava farmers were randomly selected from each of the cells, giving a total of 100 cassava farmers as the respondents which served as the sample size.

In order to measure constraints affecting the adoption of sustainable agricultural practices, ten (10) variables were presented, and four point likert - type scale was used as follows: strongly agreed (4) agreed (3), disagreed (2) and strongly disagreed (1).Variables with mean scores of 2.5 and above were adjudged severely influenced while scores below 2.5 were adjudged as not severely affecting.

RESULT AND DISCUSSIONS

Socio - economic characteristics of cassava farmers in Akwa Ibom State presented in Table 1 revealed that 45% of the respondents were male. A large proportion (51%) of the respondents was within the age range of 31- 40. Regarding education, 43% of the respondents had acquired a primary/ vocational level of education. In essence, about 15.0% of the respondents had little or no formal education. Table 1 also shows that 46% of the respondents had acquired more than 10 years of farming experience. This finding is in consonance with (Ezeh,2013) and implications are that the higher the farming experience, the more the farmer would have gained more knowledge and technological ideas on how to tackle farm production problems and the higher would be his output and income .A majority (42%) of the respondents earned between ₦21,000 – ₦30,000 per month. A large proportion of the respondents (60%) received information on cassava production from their fellow farmers, while 32% of the respondents received information from radio/ television and negligible number (4%) respondents received information from extension agents. According to Ali *et al*., (2008), agricultural extension primarily deals with human resources development and the transfer of technology and knowledge from agricultural research centres to farmers.

Table 1: Distribution of Socio-economic Characteristics of the Respondents in Akwa Ibom State, Nigeria

Variables	Frequency	Percentage
Age (years)		
20 -30	17	17.00
31 – 40	51	51.00
41 – 50	24	24.00
51 and above	8	8.00
Gender		
Male	45	45.00
Female	55	55.00
Household size		
1 – 3	20	20.00
4 – 6	49	49.00
7 – 9	27	27.00
10 and above	4	4.00
Marital status		
Single	25	25.00
Married	62	62.00
Divorce	8	8.00
Widow/widowers	5	5.00
Farm income		
₦10,000 – ₦ 20,000	7	7.00
₦21,000 – ₦30000	42	42.00
₦31,000 – ₦40,000	17	17.00
₦41,000 – and above	34	34.00
Educational attainment		
Non- formal	15	15.00
Primary	43	43.00
Secondary	23	23.00
Tertiary	19	19.00
Farming experience (years)		
1 – 10	46	46.00
11 – 20	16	16.00
21 – 30	27	27.00
31 and above	11	11.00
Source of awareness		
Radio/TV	31	31.00
Newspaper	5	5.00
Extension agent	4	4.00
Fellow farmers	60	60.00

Source: Field Survey, 2019.

Distribution of Respondents According to identified Constraints

Table 2 indicates that out of ten (10) variables identified as constraints that hindered the effective use of sustainable agricultural practices by cassava farmers in the area only four (4) variables were identified as showed severe hindering factors , which include Lack of awareness ($\bar{x}$=3.75), inadequate organic materials,($\bar{x}$=3.66) ,lack of technical know- how($\bar{x}$ =3.34), lack of technical know-how ($\bar{x}$=3.31) and non- credit facilities ($\bar{x}$= 3.01).During the Focus group discussion it was revealed that insufficient farm land , land fragmentation and pressure due to high population are other factors that force crop farmers to intensively cultivate on a small plot of land yearly. The FGD also reveals that sustainable agricultural practices suppress weed growth, cover the soil, increase water infiltration, promote soil

biological activities, increase soil fertility and reduce the risk of serious pest disease outbreak. This study corroborates with Etuk (2011) which reported that lack of relevant material is an impediment to adoption of new innovation. Also,

Table 2: Perceived Constraints to Adoption of Sustainable Agricultural Practices by Cassava Farmers in Akwa Ibom State, Nigeria

S/N.	Constraints	Mean	Std. Err.	Std. Dev.
1	Lack of awareness	3.92	0.563	1.7819
2	Inadequate organic materials	3.85	0.548	1.7324
3	Lack of technical know –how	3.34	0.434	1.3717
4	Non- credit facilities	3.01	0.360	1.1384
5	High cost of labour involvement	1.57	0.311	0.9828
6	Drudgery/ time consuming	1.56	0.038	0.1202
7	Insufficient labour supply	1.50	0.022	0.0707
8	High cost of transportation	1.44	0.008	0.0282
9	Insecure land tenure	1.41	0.006	0.0208
10	Lack of quality standard for bio-input	1.40	0.012	0.0407

Source: Field Survey, 2019

The result on table 3 shows that out of eight variables that were regressed for their effect on factors influencing adoption sustainable agricultural practices only two of the variables were significant. Age was significant at 5% level of confidence while farming experience was significant at 1% level of confidence.

This implies as age increases by 1%, the probability of an individual in the study area to use sustainable agricultural practices increases by 0.00083%. Age was positive in line with the a priori expectation and also significant at 5% level of confidence indicating that age is a major factor that determines the use of sustainable agricultural practices in the study area.

Also, farming experience was positive and significant at 1% level of confidence. The variable is a major factor in the determinant of sustainable agricultural practices as a unit increase in the factor causes a great increase in the probability of an individual making use of the sustainable agricultural practices in the area by 0.00034%. This implies the more a farmer remains in the farm the more he sought for means of increasing his productivity thus prompting use of sustainable agricultural practices in search for new and improved methods of farming.

Result of the Logit Regression Analysis on the Factors Influencing the use of Sustainable Agricultural Practices by the Cassava Farmers in the Area. (n=100)

Variable	Coefficients	Standard Error	Z	R2
Constant	4.5854	2.37192	1.9332	
AGE	0.00083195	0.0396169	0.0210	
GEN	-0.451747	0.65031	-0.6947 NS	0.593
M/S	0.578832	0.726984	0.7962 NS	
H/S	0.132864	0.156198	0.8506 NS	
F/E	0.000340	0.0829515	0.0041***	
F/S	-0.661057	0.451887	-1.4629 NS	
EDU	0.0373542	0.0562767	0.6638 NS	
FI	2.12389e-05	2.20297e-05	0.9641 NS	

Mean dependent var	0.860000	S.D. dependent var	0.348735
McFadden R-squared	0.097086	Adjusted R-squared	-0.075769
Log-likelihood	**-36.56472**	**Akaike criterion**	**87.12944**
Schwarz criterion	105.3656	Hannan-Quinn	94.50995

Source: Field Survey, 2019. *** Significant at 1% **significant 5% probability level, NS=Not Significant.

CONCLUSION /RECOMMENDATIONS

Out of ten (10) variables identified as constraints that hindered the effective use of sustainable agricultural practices by cassava farmers in the area only four (4) variables were identified as serious hindering factors , which include Lack of awareness ($\bar{x}$=3.75), inadequate organic material,($\bar{x}$=3.66) ,lack of technical know- how($\bar{x}$ =3.34), lack of technical know-how ($\bar{x}$=3.31) and non- credit facilities ($\bar{x}$= 3.0).

RECOMMENDATIONS

- The study recommends need for capacity building by training and re-training of extension workers and farmers organizations to work towards increasing farmers' awareness of the importance of sustainable agricultural practices (SAP) in order to increase their productivity.
- Federal, States' Ministries of Agriculture, ADPs and other crop related agencies should concentrate effort by way of workshop, seminar by formulating workable ideas that will create awareness on the use of sustainable agricultural practices to farmers
- Broadcasting stations and media houses should intensify effort on the extent of advertisement of sustainable agricultural practices in both the print and electronic media in order to create awareness to farmers.

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