BASELINE SURVEY OF FARMERS' PERCEPTION, PREFERENCES AND ADOPTION OF IMPROVED CASSAVA (Manihot esculenta) VARIETIES IN OYO STATE, NIGERIA

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Abstract

Cassava (*Manihot esculenta*) is a major crop in the farming system in Nigeria and it is a main or regular source of income for most rural dwellers. Despite its substantial contributions to the livelihood of the populace, the crop has remained in obscurity and neglect. Thus, the study examined farmer's perception, preference and adoption of Cassava variety traits in Oyo State, Nigeria. Stratified random sampling technique was used to select 10 respondents from 12 locations in each of the Six Local Governments Areas (How many LGA's has the state and how did you come about choosing the six?), with a sample size of 120. Structured questionnaires and scheduled interviews were used to obtain information from the respondents through 4 points Linker type Scale. Data collected were analyzed using descriptive statistics and weighted mean. The results showed that farmers perception indicated that new cassava variety traits were better than old ones ($\overline{x}$ =3.05); the most preferred variety being cultivated by farmers was IBA 961632 (farmers' pride $\overline{x}$ =2.64), and IITA-TMS 1982132 ($\overline{x}$ =2.58). Resistance to drought ($\overline{x}$ =3.06), vitamin 'A' content ($\overline{x}$ =2.64), pests and diseases resistant ($\overline{x}$ =2.54) are factors that influenced the preference of the variety traits while change of income ($\overline{x}$ =2.64) and improvement on Gross Domestic Product (GDP) ($\overline{x}$ =2.55) are reasons for the adoption. It is recommended that famers should be encouraged to adopt the improved cassava varieties, while the Government should educate farmers on good cassava farming practices, produce stem cuttings for replanting and expand markets for cassava production.

Keywords: Adoption, Cassava, Perception, Income, Variety traits,

Introduction

Cassava is the fourth most important staple in the world after rice, wheat and maize. Africa is the largest producer of cassava in the world accounting for over 54% of the total production, and Nigeria takes the global lead as the largest producer of cassava in the world with annual output of about 50 million metric tonnes from a cultivated area of about 3.7 million ha (FAO, 2020). Cassava is the main staple crop in Nigeria and an important food security crop (McNulty and & Oparinde, 2015). Anikwe and Ikenganyra (2018) reported about 4,000 varieties of cassava and that IITA recommended a total of 206 varieties to be grown which include IITA –TMS-IBA 30556, INA-TMS IBA 30572, MS-6, MS-3, NR 8083, TME 419, CRAI-10, CR36-5, IMS-7 (.) However, Nigerian Government approved ten new names of top performing cassava varieties, (which includes :) the varieties are IBA961632 (Farmers Pride), IBA 9800581(Dixon), CR 36-5 (Ayaya), IBA 070593 (Sunshine), IBA980505 (Fine Face) and renamed varieties common and already known by farmers TME419. The other four varieties are TMS 13F1160P0004 (Game Changer), TMS 13F1343P0022 (Obasanjo-2), NR 130124 (Hope) and TMS 693(Pound able) (which referenced year?)

The economic importance of cassava must have drawn the attention of Government and Non-Government Organizations (such as International Institute for Tropical Agriculture (IITA), to how...(correct) (International Inter Tropical Agriculture) to how best they could assist and encourage cassava farmers to improve its production for enhanced food security). Traits such as high yield, drought resistance, high starch content, pests and diseases resistance etc are considered by farmers in (the) cultivation of cassava. The varieties of cassava mentioned above are high yielding and resistance to viral diseases; have good colour and texture when prepare for meal. Pound able is sweet variety, it can be boiled and eat without elaborate processing. Hope and Baba-70 are good for gari and fufu processing. Game changer and Obasanjo-2 have high starch content and thereby highly demanded by flour mills and starch factories (Ref????). Kulakow (2013) explained that IITA-TMS-1982132 and IITA-TMS-1011206 developed genotypes cassava varieties were high yield, high dry content matter, good diseases resistance, yellow roots and contain moderate level of Pro-vitamin 'A'. This vitamin 'A' cassava is very attractive yellow colour and high content of vitamin A. It (adjust) can be processed into garri, fufu, wet flakes etc which contributes more to body growth, ensures clear vision, very nourishing for children development. ,

In Nigeria, cassava products are consumed in various forms. Cassava roots are used traditionally to produce foods like garri, edible starch, fufu, tapioca, and cassava flour. Garri which is the most consumed among the different forms of cassava products is a granular flour made from cassava roots by peeling, washing, grating, fermenting, pressing and roasting (De Moura). Garri is perceived by processors to be an interesting product, because it is a convenience food with good storage life and, on average, with better market demand than other cassava products. It can compete with rice in terms of preference and price in urban and rural markets (Chidiebere-Mark and Anyawu, 2020)

The productivity of cassava always varies depending (add) on the weather and soil conditions. Ikuemonisan and Akinbola (2019) stressed the implication of cassava productivity. High outputs would be advantageous to farmers than it low output. More than 291 million tons of cassava was produced worldwide in 2017., Africa solely produced over 60% of the tons, while 50 million tons of the cassava was produced by Nigerian farmers (http//www.iita.org/cropsnew/cassava referenced year?).

It is used as food with lesser amount used for industrial purposes and for livestock feed. This to some extent has

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dropped the income to be generated on cassava production. Consquently, investigations by various researchers and organizations aimed to boost cassava production and improve income generation of the farmers.Therefore, this study is aimed at investigating farmer's perception, preference and adoption of Cassava variety traits in Oyo State, Nigeria.

Methodology

This study was carried out in Oyo state of Nigeria,; located between latitudes6.5°and 9°North of the Equator and between longitudes 3° and 5°Feast of the Greenwich Meridian. The State has high savanna vegetation with trees of moderate height in thenorth and rain forest with tall trees and palms towards the south. The State has altitudes ranging from 200 to 450 m above the sea level, annual rainfall ranging from 1000 to 1500 mm and design wind velocities ranging from 96 to 145 km/h (Sunday *et al.,*2007).

The population for this study consisted of cassava farmers in 33 Local Government Areas of Oyo State. The target population however comprised cassava farmers in six Local Government Areas from which a sample is drawn.

Sample and Sampling Technique

The sample of the study was selected using multi stage sampling technique. At first, simple random technique was used to select six Local Government Areas (is this good enough to give a fair representation and characteristics of cassava farmers in the study area; towards meeting the objectives of the study?) (Atisbo, Iwajowa, Itesiwaju, Orire, Oyo West and Oyo East) in Oyo State. Second, stratified sampling technique was used to select two locations from each of the Local Government selected, making 12 locations .Lastly, because of the zone nature of this work, cluster

random sampling was used to select 10 respondents from each location making 120 respondents.

Questionnaires and scheduled interviews were used to obtain information from the respondents through four liker type scale of Strongly Disagree (SD), Disagree (D) Agree (A) Agree and Strongly Agree (SA) chosen by the respondents. The data collected from the respondents were analyzed, using descriptive statistics such as frequency counts percentages and means.

Results and Discussion

Table 1 presents the perception of farmers on cassava variety trait. Result showed that majority of the farmers indicated that new cassava varieties are better than the old ones ($\overline{x}$ =3.05), new cassava varieties stem are not readily available ($\overline{x}$ =2.92), demand for local variety is higher than new variety ($\overline{x}$ =2.73). Standard deviation ranged between 0.68-0.96. This implies that the farmers differed in their opinion about the attributes of cassava variety traits. The positive attributes are expected to influence the farmer's decision to grow cassava varieties?. Nwaobiala (2017) indicated farmer's perception and preference towards cultivating varieties with traits of high yield, dry matter content, and disease resistance. Perception has to do with individuals assessment and understanding of a particular product. In a similar study on bio-fortified pro vitamin A cassava (Chidiebere-Mark and Anyawu, 2020) reported that farmers differed in their opinion. Ajibefun (2015) urged cassava farmers to adopt new cassava varieties ? alongside new technology and innovation to further enhance cassava production.

Table 1: Farmers perception on cassava variety traits/ Farmers perception on improved cassava (*Manihot esculenta*) varieties?

Variable	SD	D	A	SA	X	SD
New cassava variety have high yield	3(2.5%)	32(26.9)	49(41.2%)	35(29.4%)	2.03	0.82
Demand for local variety is higher than new variety	54(45.4%)	1(0.8%)	12(10.1%)	52(43.7%)	2.73	0.68
I am excited about new variety	5(4.2%)	24(20.2%)	45(37.8%)	45(37.8%)	2.26	0.83
New cassava varieties are better than old ones	5(4.2%)	12(10.1%)	74(62.2%)	28(23.5%)	3.05	0.711
New cassava varieties stem are not readily available	15(12.6%)	15(12.6%)	54(45.4%)	35(29.4%)	2.92	0.96
Farmers are not sure of new cassava variety traits	5(4.2%)	14(11.8%)	68(57.1%)	32(26.9%)	3.07	0.75

Weighted mean = 2.62

Table 2 presents farmers perception on cassava variety traits. Results showed that the most preferred cassava variety planted by farmers was IBA 961632 (Farmers Pride, $\overline{x}$ =2.64) and IITA-TMS 1982132 ($\overline{x}$ =2.58). The most outstanding variety trait of any crop is the consumer acceptability which culminates into financial benefit through income generation to the farmer. Farmers from different areas, whether urban or rural, have different concerns and may have different trait preferences, and where such differences in trait preferences across production areas exist, they should be considered in order to ensure efficiently designed breeding programmes (Acheampong, *et al.,* 2018). Indeed, Cassava is a major tuber crop of Africa and Sub-Saharan Africa; and its production through conventional breeding programmes should be promoted to enhanced it productivity (Kulakow, 2013). According to Akintunde (2016) farmers preferred improved cassava varieties that have traits such a early maturity, bigger roots, diseases resistance and high water contents.

Table 2: Cassava variety traits preferred by farmers/ Improved cassava (*Manihot esculenta)* varieties preferred by farmers?

Variable	SD	D	A	SA	X	SD
IITA-TMS 1011206	35(29.4%)	4(3.4%)	52(43.7%)	28(23.5%)	2.13	0.808
TME 419	19(16.0%)	32(26.9%)	63(52.9%)	65(54.2%)	2.19	0.751
IBA 980505 (Fine Face)	18(15.1)%	6(5.0)%	60(50.5%)	35(29.4%)	2.24	0.770
IBA 961632 (Farmers Pride)	13(10.9%)	29(24.4%)	65(54.6%)	12(10.1%)	2.64	0.810
IITA-TMS 1982132	17(14.3%)	62(52.1%)	28(23.5%)	12(10.1%)	2.58	0.859

Weighted mean = 2.36

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Table 3 presents factors that influenced farmers' preference for cassava variety traits. Result showed that resistance to drought ($\bar{x}$ =3.60), financial gain from varieties ($\bar{x}$ =2.71) and vitamin 'A' content ($\bar{x}$ =2.64) (are what?/ and what about them?). Njukwe *et al.,* (2013) opined in a similar study that short crop cycle, tuber yield and pest/disease resistance were major factors that influenced farmers preference for cassava variety. Farming experience affects farm managerial know how and decision making process. Obviously, an experienced farmer will most likely identify the relative advantage of improved varieties over local varieties (Babasanya, *et al.,* 2013). This seems to have been the case in the present study.

Table 3: Factors influencing farmers' preference for cassava variety traits/ Factors influencing farmers' preference for improved cassava (*Manihot esculenta)* varieties?

Variable	SD	D	A	SA	X	SD
Pest and diseases resistant	30(25.2)%	13(10.9%)	5(4.2%)	71(59.7)%	2.54	0.86
It has vitamin 'A' content	18(15.1%)	16(13.4%)	29(24.4%)	56(47.1%)	2.64	0.83
It has high yield	28(23.5%)	4 (3.4%)	70(58.8%)	17(14.3%)	2.28	0.80
Financial gain from varieties	29(24.4%)	10(8.4%)	18(15.1%)	62(52.1	2.71	0.92
High demand by processors	13(10.9%)	35(29.4%)	52(43.7%)	19(16.0%)	2.38	0.77
Resistance to drought	7(5.9%)	32(26.9%)	52(43.7%)	28(23.5%)	3.06	0.65

Weighted mean = 2.60

Table 4 presents farmers reasons for adoption of improved cassava varieties. Results showed and varied from: It will change my income ($\bar{x}$ =2.64), it will improve national Gross Domestic Product ($\bar{x}$ =2.58) and help in balance of trade ($\bar{x}$ =2.26). It is evident that income is an essential reason for farmer's choice on varieties of cassava to plant just as in any other business. Ogunyinka and Oguntuase (2020) reported that farmers can increases their income by growing improved cassava varieties which are highly demanded by cassava processors as a result of its higher starch content and high yield. In addition, Angba and Iton (2020) established that many cassava farmers had no access to enough capital to cultivate improved varieties and were struggling to survive with their families.

Table 4 Reasons for the adoption of improved cassava *(Manihot esculenta)* varieties

Variables	SD	D	A	SA	X	SD
It will change my income	13(10.9%)	29(24.4%)	12(10.1%)	65(54.6%)	2.64	0.810
It will improve my families standard of living	22(18.2%)	2 (1.7%)	63(52.9%)	32(26.9%)	1.95	0.723
Provides raw materials for local and foreign industries	3 (2.5%)	24(20.2%)	44(37.0%)	48(40.3%)	1.88	0.815
Will improve national Gross Domestic Product	37(31.1%)	18(15.1%)	44(37.0%)	20(16.8%)	2.55	0.945
Help in balance of trade	45(37.8%)	5(4.2%)	45(37.8%)	24(20.2%)	2.26	0.826

Weighted mean = 2.26

Conclusion and Recommendations

Based on the findings, it can be concluded that improved cassava variety displayed better traits were better than the old, unimproved ones. Income was a major consideration for the adoption of these improved cassava varieties among the farmers. (Insert a paragraph here for your recommendations) It is therefore, recommended that: i) Farmers should actively adopt and grow improved cassava varieties., ii) Consequently, farmers need to be educated on improved cassava farming practices, particularly on the need to produce enough stem cuttings for planting. iv). Also farmers should be made to inculcate the habit of utilizing their available resources to improve cassava production. v) And lastly, government should make available, platforms for the marketing of cassava produce in order to encourage farmers and boost its production.

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