

UTILIZATION OF IMPROVED CASSAVA VARIETIES AMONG EXTENSION AGENTS IN BENUE STATE, NIGERIA

M.H. TOKULA AND K.C EKWE

ABSTRACT:

Utilization of Improved Cassava varieties among extension agents (EAs) in Benue State, Nigeria was appraised in 2006. The data were collected using structured questionnaire, and analyzed using simple descriptive statistics (frequency and percentages), and linear regression analysis. Results showed that TMS 30572 was utilized more than other varieties studied. The factors that contributed to utilization included high fresh tuber yield, early maturity and high quality gari and other products. Constraints to utilization included scarcity and high cost of planting materials (cassava stems) and inadequate information about some varieties (NR8083). The regression analysis showed that sex and education had a positive and significant relationship with utilization at 1% level, while age had negative but significant relationship with utilization at 1% level. It was recommended that efforts should be made to massively multiply improved cassava stems and effectively distribute at affordable prices to increase utilization of the improved varieties.

Key words: Utilization, Improved, Varieties, Extension Agents.

INTRODUCTION:

Cassava is a major food crop widely grown and consumed in Nigeria. It is an important source of carbohydrate in the diet of most Nigerians. Cassava has become a major source of food and income for small holder farmers and raw materials for industries (Okigbo 1980, Kormawa *et al*, 2001). Cassava has not only risen to prominence in Nigeria but throughout the sub-Saharan Africa where out of the more than 200 million people about one third of the population get more than half of their calories from cassava based foods (Kormawa *et al*, 2001). The crop currently enjoys an enhanced status as a result of increased demand for cassava and cassava products outside the rural communities as well as the realization of its potentialities for the attainment of self sufficiency in food production (Ikpi *et al*, 1986; Nzekwe and Afolami, 2001)

The growth of cassava as a major economic crop over the last two decades has generated significant research interest as it was included in the presidential initiative, projecting it highly at the National and International levels. Cassava is widely accepted in sub-Saharan Africa as a result of its outstanding qualities such as adaptable and tolerance to various ecological conditions as well as all year round availability in Nigeria. Cassava is processed into staple foods like gari, fufu, flour, starch, chips and tapioca (Chinaka *et al*, 1995). Both the leaves and tuber peels of cassava are also important sources of livestock feed. Industrially; cassava is processed into starch powder, cold water starch for textile furnishings and home laundry, glues and adhesives. It is also used in the production of drugs, paints and alcohol. Both the stems which serve as planting materials as well as the fresh tubers are currently sold for income.

Nigeria has been the world's largest producer of cassava. Per capita cassava production has increased from 180kg per person in the 1960s to 300kg per person in the 1990s (Bokanga, 2001). The increase in cassava production in Nigeria over the last decade could be attributed to the efforts by scientists at IITA and NRCRI to lift some of the constraints that hindered cassava production before the current era. Such constraints as short

Journal Of Agriculture and Social Research (JASR) Vol. 6, No.2, 2006

fallow periods and poor soil fertility, untapped market opportunities, poor quality planting materials, plant pests and diseases, post harvest losses of tubers and limited value added products from cassava have been minimized with such intervention programmes as the collaborative study of cassava in Africa (COSCA), the Cassava Mosaic Disease (CMD) project and the Cassava Enterprise Development Project (CEDP).

The collaboration between National Root Crops Research Institute (NRCRI) and International Institute for Tropical Agriculture (IITA) has resulted in the development and release of high yielding, disease and pest resistant cassava varieties capable of adapting to a wide range of ecological conditions and farming systems. Already, these elite varieties have been introduced into the farming systems of the middle belt zone of Nigeria through the various State Agricultural Development Programmes. It is almost traditional to concentrate effort on ascertaining farmers' utilization of technologies disseminated to them with mere assumption that the frontline Extension agents have already adopted them hence their involvement in their transfer. Such assumption however, could be wrong as EAs might not actually have adopted but just only performing their statutory functions. Since EAs perform essential roles in farmers' utilization of transferred improved cassava varieties/ technologies, it is thus expedient to also assess the utilization of the improved cassava varieties disseminated by them. The study is therefore aimed at assessing Extension Agents' utilization of improved cassava varieties in Benue State, Nigeria as well as determining factors that influence their utilization.

METHODOLOGY:

The study was conducted in four Local Government Areas (LGAs) in Benue State, Nigeria. Ten extension agents were randomly selected from each LGA giving a sample size of forty respondents for the study. The LGAs include Makurdi, Gwer, Gwer East and Guma. Structured and pre-tested questionnaires were used to elicit responses from the Extension agents. Descriptive statistics (such as frequency and percentages) and linear regression analysis were employed to analyze the data collected.

The linear regression model is specified as:

$Y=f(X_1, X_2, X_3, X_4, X_5, X_6)$ where

Y= Utilization of Improved Cassava Varieties

X₁ = Sex (male = 2, Female = 1)

X₂ = Age in years

X₃ = Marital status (Single = 1, married = 2, widowed = 3)

X₄ = Household size (in numerical values)

X₅ = Farming experience in years

X₆ = Level of education (Primary = 6, Secondary = 12, Tertiary = 16)

RESULTS AND DISCUSSIONS

The results in Table 1 revealed that majority of the respondents were males (71%). This also indicated the task of technology dissemination to farmers in the study was performed mostly by male folks despite the fact that most farm operations are carried out by women. Again, most respondent (63%) were between 31 and 40 years of age while 21% were between 41 and 50 years. Though most respondents were in still in their active and productive life stage; result indicated an ageing labour force among the EAs. Almost all (95%) of the EAs were married while 52% and 21% maintained 11- 15 and 16-20 household sizes respectively. The large household size was quite useful in providing the labour for agricultural activities in the area.

Table 1: Distribution of EA's according to socio-economic characteristics (n=40)

Sex	Frequency	Percentage
Male	28	71
Female	12	29
Age range		%
21-30	5	11
31-40	25	63
41-50	8	21
51-60	2	5
Married status		%
Single	0	0
Married	38	95
Widowed	2	5
Divorced	0	0
Household size		%
1-5	4	10
6-10	21	52
11-15	8	21
16-20	7	17
Level of education		%
Primary school	14	34
Secondary school	15	37
Tertiary	11	29

Educational status of the respondents was relatively low considering the strategic position they occupy in technology transfer. While 37% and 34% of the EAs had secondary and primary education respectively, only 29% who had tertiary education obtained the necessary training for the job.

Result in Table 2 revealed that majority (80%) of the respondents were aware of TMS 30572 variety while more than half of the respondents (53%) currently plant the variety. Similarly, for TMS 4(2)1425 variety, majority (68%) of the respondents were aware but only about a third (32%) of the respondents utilize it. The NR 8082 and 8083 varieties seemed unpopular among the EAs as only half (50%) of the respondents and less (40%) were aware of them respectively. In fact, not more than one quarter (25%) of the respondents used the NR varieties.

Table 2: Percentage distribution of respondents according to awareness and Utilization of improved cassava varieties among Extension Agents

Cassava varieties	% awareness	%utilization
TMS 30572	80	53
TMS 4(2)1425	68	32
NR 8082	50	25
NR 8083	40	10

Source: Field survey, 2006.

Thus, it was observed that the TMS varieties were more popular among EAs in Benue State than the NR varieties. This could be explained by the fact that TMS varieties were more

extensively disseminated, promoted and popularized in the zone by IITA which developed them than the NR varieties developed by NRCRI Umudike.

Furthermore, Table 3 showed that 55%, 52% and 50% of the respondents variously indicated that high fresh tuber yield early maturity and high gari quality respectively were the key reasons for EAs' use of TMS 30572 variety. Similarly, half of the respondents (50%) indicated TMS 4(2) 1425 variety was used because of early maturing and high sfresh tuber yield attributes. On the other hand, there were relatively low proportions of the respondents indicating reasons for use of NR 8082 and NR 8083 varieties as planting materials. This possibly was because only about half or less of the respondents knew about the varieties and their attributes as earlier shown in Table 1.

Table 3: Distribution of Respondents according to reasons for utilization and non-Utilization of improved cassava varieties.

Variables Reasons for Utilization	Varieties			
	TMS 30572	TMS 4(2) 1425	NR8082	NR8083
Early maturity	52	50	25	10
High fresh tuber yield	55	50	20	10
Resistance to pests and diseases	10	15	10	5
High quality Gari and other products	50	35	25	10
Reasons for Non-utilization				
Pests and diseases attack	10	5	0	0
High cost/scarcity of stem	60	75	85	90
No ready market for products	40	40	40	40
Lack of processing machines	20	10	15	15
Inadequate Information about the variety	10	10	40	80

Source: Field survey, 2006 multiple responses recorded.

Scarcity and high cost of cassava stems as planting materials were found to be the major reasons for non- utilization of the varieties with 90, 85 and 75 of the respondents for NR8083, NR8082 and TMS 4(2)1425 respectively. Inadequate information about NR 8083 also constituted a major problem (80%) to the usage of the variety.

The regression analysis in Table 4 revealed that the sex (X_1) is positively related to EAs' utilization of improved cassava varieties at 1% level of significance which was an indication that utilization of the improved varieties occurred more among male EAs' than the female counterparts. The relationship between age (X_2) and EAs' use of the cassava varieties was negative but significant at 1% level. This implies an inverse relationship between age and use of the improved varieties. The result agrees with earlier studies which indicated that utilization of improved agricultural technologies decreased with increase in age (Chinaka *et al*, 1995; Nweke and Akorhe, (1983).

Table 4: Regression analysis of Relationship between Extension Agents' socio-economic characteristic and utilization of improved cassava varieties

Variables	Parameter Estimates
Intercept	0.458 (0.39)
X1 (Sex)	0.638 (2.8)***

X2 (Age)	-0.066 (-4.29)***
X3 (Marital status)	0.406 (1.35)
X4 (House hold size)	0.023 (1.11)
X5 (Farming experience)	0.012 (0.83)
X6 (Educational status)	0.217 (8.45)***
F value	15.74***
R ₂	0.753

Source: Field survey, 2006; t -ratio in parenthesis; *** = Significant at 1% level.

Level of education (X₆) was observed to have positive and significant relationship with EAs' utilization of the improved cassava varieties at 1% level of significance. This shows a direct relationship between EAs' educational status and their utilization of the improved varieties. It further implies that high education status encouraged utilization of the improved cassava varieties among the Extension agents. On the other hand, such factors as household size, farming experience and marital status had no significant relationship with utilization of the cassava varieties.

CONCLUSION

The major objective of the study was to appraise the utilization of improved cassava varieties by extension agents in Benue State. Results from this study revealed that TMS 30572 and TMS 4(2) 1425 had both high level of awareness and usage among the extension agents. Key reasons for use of the varieties included high fresh tuber yield, early maturity and high quality gari and other products. On the other hand, scarcity and high cost of cassava stems and inadequate information about some varieties especially NR8083 were major constraints to the use of elite varieties. The regression analysis of factors that influence utilization of the improved cassava varieties showed that sex and education were positively related to utilization of the improved cassava varieties at 1% level while age had a negative but significant relationship with utilization of the improved varieties.

The recommendation based on the findings from this study is that efforts should be intensified in multiplying, disseminating as well as promoting the improved cassava varieties especially in the study area. Again, the management of Benue State Agricultural Development Programme should primarily encourage their frontline EAs to acquire sufficient information about the improved cassava varieties. The EAs can also be given few bundles to try in their farms as a way of encouraging them to use the varieties. The EAs will in turn encourage farmers to adopt any technologies they have proven. Also, training on the multiplication and dissemination of the improved cassava varieties should be organized for the EAs in the study area.

REFERENCES

- Bokanga, M. (2001). Strategies for Development of Cassava Industry in Africa. Proceedings of 8th ISTRC-AB. Symposium held at Ibadan, Nigeria. Pp. 38-44.
- Chinaka, C.C., Chikwendu, D.O. and Asumugha, G.N. (1995). A socio-economic study of the utilization and sustainability of Improved Cassava Varieties among resource –

Journal Of Agriculture and Social Research (JASR) Vol. 6, No.2, 2006

- poor farmers in South-east forest zone of Nigeria. Proceedings of 6th Symposium. ISTRC-AB held at Liliongwe, Malawi. Pp. 333-336.
- Ikpi, A.E., Gebreneekel, T., Ezuma, N.D. and Ekpere, J.C. (1986). Cassava. A Crop for Household Food Security. A 1986 Situation Analysis of Oyo L.G.A. Nigeria, Ibadan Nigeria. IITA – UNICEF Report.
- Kormawa, P., Tschunza, M., Dixon, A., Udor E. and Okoruida, U. (2001). Varietal Characteristics of Cassava: Farmers perception and preferences in the Semi Grid zone of West Africa. Proceedings of 8th ISTRC-AB Symposium held at Ibadan Nigeria Pp. 61-67.
- Nweke, F.I. and Akorhe J.A. (1983). Determinants of utilization of new technologies among small holders and application for administration of transfer programs. A Case Study of rice production in the Plateau State of Nigeria. Agric Admin. Vol. 2. No. 2 Pp. 78.
- Nzekwe, L.S.O. and Afolami C.A. (2001). Technology Utilization of Improved Practices by Small scale Cassava Farmers in Agricultural Development Programme (ADP) Zones of Ogun State. Proceedings of 35th Annual. Conference of Agric. Society of Nigeria held at University of Agriculture Abeokuta Nigeria. 16-20 Sept. Pp. 331-332.
- Okigbo, B.N. (1980). Nutritional Implications of Projects Giving High Priority to the Production of Staple of Low Nutritive Quality. The Case of Cassava in Humid Tropics of West Africa. Food and Nutrition Bulletin. 2(4): 1-8.