

EFFECT OF ADOPTION OF IMPROVED CASSAVA VARIETIES ON FARMERS' INCOME IN ABIA STATE, NIGERIA

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ABSTRACT

Cassava has for decades been cultivated as a subsistence crop by resource poor farmers in the state and unimproved planting materials had been used in the main. The study examined the effect of adoption of improved cassava varieties (TMS 30572 and NR 8082) on farmers' income in Abia State, Nigeria. The study was conducted in Ohafia zone of Abia State, Nigeria. Respondents were randomly selected from 5 out of 7 extension blocks in the zone. The 5 blocks were purposively selected because cassava cultivation is prominent in the area. Subsequently, 30 farm families were randomly selected from each of the 5 Blocks through random sampling technique to give a total of 150 respondents, which constituted the sample size for the study. Data collection employed a structured questionnaire, which was developed for the study. Data analysis was achieved using descriptive statistics such as frequency counts, percentages and mean, as well as simple regression analysis. Results showed a high level of adoption (70% and 66% for TM 30572 and NR 8082 varieties respectively) among farmers in the area. Results also revealed mean income earned by farmers in the area to be ₦30, 340.05 per annum. Results of the simple regression analysis showed that adoption of improved cassava varieties by farmers is positively and significantly related to adoption of improved cassava varieties at 1% level. It was recommended that the extension agency should intensify their awareness campaign on the improved cassava varieties with a view to encouraging farmers to adopt on sustained basis to enhance their income.

Key words: adoption, improved cassava varieties, farmers' income

INTRODUCTION

Cassava is one of the most important crops in Nigeria and Africa as a whole (Nweke *et. al.*, 2002). It is generally regarded as the foremost food security and poverty alleviation crop for Nigeria and entire Sub-Saharan Africa (SSA) because of its special attributes which include ability to make return of root yield even at extreme stress conditions, high tolerance to unfavorable conditions; requiring minimal external inputs; all year round availability; highly suitable to various farming and food systems in Africa as well as efficient production of food energy (Beeching *et. al.* 2000, Awa and Tumanteh 2001, Ekwe *et. al.* 2008). Cassava has the ability to grow on marginal lands where cereals and other crops do not grow well, it tolerates drought and can grow in low nutrient soils, because its roots can be stored in the ground for up to 24 months, some varieties for up to 36 months. Harvest can be delayed until markets, processing and other conditions are favourable (Okunade *et. al.* 2005).

Cassava, which for decades has been cultivated as a subsistence crop by resource-poor rural farmers appears to have blossomed into an all-important income generating crop. Nzekwe

and Afolami (2001) reported that cassava cultivation has become an income generating activity. They posited that this enhanced status is as a result of increased demand for cassava and cassava products outside the rural communities (Ikpi *et al.* 1986) as well as the realization of the attainment of self-sufficiency in food production (Koatia 1986). Adoption has been described the conscious or unconscious mental process through which an individual passes from first knowledge of an innovation to a decision to reject or accept the knowledge and make it part of his agrarian culture/ permanent behavior (Onuoha and Nnadi, 1998). Eighty percent of Nigerians live in the rural areas, relying on agriculture for their employment and yet spend high proportion of their income on food because of low production level (Anyichi, 1995). The collaboration between international Institute for Tropical Agriculture (IITA), Ibadan and National Root Crop Research Institute, Umudike (NRCRI) has led to the development of improved cassava varieties, which have such qualities as disease and pest resistance, early maturity, low cyanide content and adaptability to high quality food forms and value products (Tokula *et. al.* 2007). These improved cassava varieties have been disseminated to farmers over time. According to Tokula *et. al.* (2007) varieties that are resistant to the major diseases of cassava such as NR 8082 and TMS 92/0326 are known to give high yield of about 50% more than the local varieties.

Cassava production in Abia State and the country at large has continued to remain largely in the hands of resource-poor rural farmers. The crop is known to have been cultivated as a subsistence crop for decades by these same resource-poor rural farmers. Many improved cassava varieties have been developed by the research institutes and disseminated to farmers in the study area. Apu (2004) reported that prior to the introduction and spread of the improved cassava varieties, numerous traditional/local/old (or unimproved) varieties were being used by farmers in different producing communities. Some of these local or unimproved cassava varieties which are largely poor yielding, highly susceptible to pests and diseases, among other shortcomings, are still in use in some rural localities. Some of these unimproved cassava varieties include:

Ulo Ubi – still in use in Arochukwu LGA, particularly
Ezuma Ngwa in Ihechiowa – still in use in Amoba, Arochukwu LGA
Obiaraohuru
Ibewa
Apama
Agadagba
Avuruataa
Okwuwuruwuru
Opuwuruwuru
Iwa Lodu
Iwa Panya
Nwalagu

Most of these traditional cassava varieties have been replaced or are being replaced by the improved varieties, otherwise known as “Agriculture cassava” (Unanma, 1991). The study was therefore aimed at determining the effect of adoption of improved cassava varieties on farmers’ income in the study area. Specifically, the study aimed at ascertaining the level of adoption of two improved cassava varieties NR 8082 and TMS 30572 by farmers in Abia State and also to

determine the effect of adoption of improved cassava varieties on farmers' income in the study area.

METHODOLOGY

The study was conducted in Ohafia agricultural zone of Abia State, Nigeria, which comprised seven extension blocks. Primary data for the study was collected from farm families, which were randomly selected from 5 out of the seven blocks in the zone. The blocks were purposively selected because cassava production is prominent among farmers in the zone. Thirty farm families were randomly selected from each of the 5 blocks through simple random sampling technique. This yielded a total of a one hundred and fifty respondents, which constituted the sample size for the study. Data was collected with the aid of a structured questionnaire developed for the purpose.

Descriptive as well as inferential statistics were used in analyzing the data collected. Simple regression analysis was used to determine the effect of improved cassava varieties adoption on farmers' income in the study area. Farmers' opinion was used to assess their level of adoption of the improved cassava varieties. This was based on the stage where each farmer was on the 'Awareness-Interest-Evaluation-Trial-Adoption' (AIETA) adoption model as at time of the study.

RESULTS AND DISCUSSION

Table 1 shows the percentage distribution of farmers by level of adoption of improved cassava varieties based on farmers' opinion in the study area. Results revealed that 75 percent of the respondents were aware of the availability of TMS 30572 while 70 percent adopted the variety. On the other hand, 96 percent of the respondents were aware of the availability of NR 8082 variety while 66 percent adopted it. However, about 25 percent and 4 percent of the respondents maintained that they were unaware of the availability of TMS 30572 and NR 8082 varieties respectively.

Table 1: Percentage distribution of Farmers by Level of Adoption of Improved Cassava Varieties in the Study Area

Level of Adoption	TMS 30572	NR 8082
Unaware	25	4
Aware	75	96
Interested	-	5.5
Evaluation	0.8	4.7
Trying out	4	20
Adopted	70	66

Source: Field Survey, 2004

The foregoing revealed a high level of adoption of improved cassava varieties, notably TMS 30572 and NR 8082 by farmers in the study area. Thus it is expected that farmers' income in the area will experience a boost as a result of sales of their cassava and cassava by-products. Cassava roots can either be sold (in roots or proceeds form) or consumed at home in the South-South and South-Eastern Nigeria (Ezedinma *et. al.* 2007; Okoye *et. al.* 2010).

Table 2 shows the income generation level of farmers in the study area from sales made of their cassava products. Results revealed that mean income generated from the sales of cassava and its by-products by the respondents on annual basis were ₦30, 340.05. Results indicate that farmers in the study area made reasonable income out of the sales of cassava and its by-products. This implies that cassava production is a veritable livelihood activity out of which farmers in the area generate reasonable income for their sustenance. Adoption of improved cassava varieties on sustained basis is expected to guarantee higher income from cassava sales. Results conform to Nzekwe and Afolabi (2001) who stated that cassava cultivation has become an income an income generating activity. According to them this enhanced status is as a result of increased demand for cassava and cassava products outside the rural communities as well as the realization of the potentials it has for contributing to the attainment of self-sufficiency in food production.

Table 2: Distribution of Farmers by Income Earned following Adoption of Improved Cassava Varieties / Sales realized there from per annum (n=150)

Income	Frequency	Percentage	Mean
₦1 – ₦10, 000	08	5.3	
₦ 11, 000 - N20, 000	37	24.7	
₦ 21, 000 – ₦30, 000	29	19.3	
₦ 31, 000 – ₦40, 000	29	19.3	30,340.05
₦41, 000 – ₦50, 000	18	12.0	
₦51, 000 – ₦60, 000	23	15.3	
₦61, 000 – ₦70, 000	05	3.3	
₦71, 000 – ₦80, 000	01	0.7	

Source: Field Survey, 2004

Tables 3 and 4 show results of simple regression analysis relating adoption of improved cassava varieties with farmers’ income in the area. Results indicate that there is a positive and significant relationship between adoption of improved cassava varieties (TMS 30572 and NR 8082) and farmers’ income in the state at 1% level. Based on the results, farmers could be advised and encouraged to adopt improved cassava varieties (TMS 30572 and NR 8082) on large and sustained basis as a means of improving their income. This is because the more the farmers adopted improved cassava varieties the more income they earned from their sales of the commodity. The hypothesis of a positive relationship between adoption of improved cassava varieties and farmers’ income in Abia state was therefore accepted at 1% level of significance for TMS 30572 as well as NR 8082.

Table 3: Result of Simple Regression Analysis showing Relationship between Adoption of TMS 30572 Cassava Variety and Farmers’ Income

Variable	Parameter Estimate	t-ration
Intercept	0.02229	(0.22)
Income	1.94E – 05	(7.67)***
R ²	(0.5509)	
F- ratio	(58.79)***	

*** = Significant at 1% level

Table 4: Result of Simple Regression Analysis showing Adoption of NR 8082 Cassava Variety and Farmers Income

Variable	Parameter Estimate	t-ratio
Intercept	0.07771	(-0.63)
Income	1.94E – 05	(6.39)***
R ²	0.4597	
F- ratio	(40.84)***	
N	150	

*** = Significant at 1% level

Source: Field Survey, 2004

CONCLUSION

The level of adoption of improved cassava varieties (TMS 30572 and NR 8082) by farmers in the study area was quite high (as shown in Table 1). Farmers in the area earned reasonable income from the sales of cassava and its by-products. The mean income earned by farmers from cassava sales per annum was ₦30, 340.05. Thus, farmers could be advised and encouraged to adopt improved cassava varieties on a sustained basis as a means of enhancing their income. It is recommended that the extension agency should intensify their awareness campaign on the improved cassava varieties with a view to popularizing the desirable qualities of the improved planting materials among the farmers. When this is done, farmers will be encouraged to adopt the improved cassava varieties and will ultimately earn more income from the sales of the commodity.

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