

## AWARENESS AND ADOPTION OF RAPID CASSAVA STEM MULTIPLICATION TECHNIQUES AMONG ARABLE CROP FARMERS IN OYO STATE

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### ABSTRACT

Cassava is a major cultivated crops in Nigeria to attain food security and create wealth. This paper assessed the awareness and adoption of rapid cassava stem multiplication techniques (RCSMT) among rural farmers in Oyo State Nigeria. Data were collected from 120 respondents with the aid of a well-structured questionnaire using multi-stage sampling procedure. Data were analysed using descriptive statistics and logistic regression model. Results revealed that, the mean age of the respondents was 42years, 73.3% were male, 29.2% attained secondary education and 74.2% were married with mean household size of 6persons. Majority (65.3%) engaged in crop production only with mean farm size of 4hactares, 16years farming experiences and about half (48.3%) of the farmers used hired labour. The average monthly income was ₦238041.67. More than half (55.8%) of the farmers were not aware of RCSMT. Major source of information on RCSMT were sales agent (47.5%), fellow farmers (44.2%) and Farmers cooperatives (35%). Majority (79.1%) were willing to adopt RCSMT. Factors influencing adoption of RCSMT were production of quality and high produces ( $\bar{x}=4.34$ ), more tubers are produced ( $\bar{x}=4.26$ ) and technology is compatible with local resources ( $\bar{x}=3.81$ ). Logit regression revealed that education ( $p<0.05$ ), income ( $p<0.05$ ), farming experience ( $p<0.10$ ), compatibility and accessibility ( $p<0.05$ ) had significant relationship with adoption RCSMT. Therefore, there is a need for supportive services by the government with a view of providing adequate access to information and resources on RCSMT to ensure effective implementation and adoption of the technique among crop farmers, bringing about increase in cassava production in the study area.

**Keywords: Adoption; Rapid; Cassava; Technique, Multiplication.**

### INTRODUCTION

Agriculture is the main source of livelihood in Nigeria and has always played a pivotal role in the history of National economic development (Imodu, 2015). Over several decades, agriculture has provided food, security, employment, foreign reserve and reduced poverty, making the sector a bedrock of the national

economy, (CBN, 2013). Cassava ranks among the highest most important food crop worldwide and the highest food crop produced in the developing countries (Ravindran and Kenken, 2016). In Africa, Nigeria is the leading cassava producer. Latest available statistics show that in 2014, it produced about 57million metric tons (MT) (FAOSTAT, 2016). The success stories of cassava can be drawn from countries such as Brazil, Nigeria, Thailand and Vietnam. For instance, in Brazil, cassava has been used successfully in the confectionery and baking industry (Sanginga and Mbabu, 2015).

Nigeria is the largest producer of cassava in the world; but the trend in the yield performance (production per hectare) remains low. This low yield may be linked to ineffective agronomic practices and inefficient management of production resources (Tadele and Assefa, 2012). Most families in Nigeria, especially in the South West, consume the storage roots in various forms, such as gari, fufu, starch, fresh and dry flakes (abacha) and tapioca. Also, cassava often serves as the main crop or the dominant component in crop mixtures in South-Western Nigeria (Ikeorgu and Mbah, 2017). As a cash crop, 45% of it is sold for various household income needs (Nweke, 2012). Data from the Collaborative Study of Cassava in Africa (COSCA) showed that 80% of Nigerians in the rural areas eat a cassava meal at least once a week (Carter and Jones, 2010). Cassava is one of the easiest crops to grow and is readily available” in most part of the country. These good qualities of cassava and the other root crops made their multiplication important among other crops. To achieve the multiplication of cassava in order to increase its production, the improved agronomic activities must be used. Some improved agronomic activities are: sourcing of improved planting materials from known growers/out growers; planting of improved materials; use of Herbicides to kill weeds; use of chemicals to control pests and diseases; fertilizer application and mechanical harvesting of crops Eze and Anumihe, (2013). Due to the importance of cassava, a lot of improved varieties have been developed such as TMEB419 (TME 419), IITA-TMS-IBA980505 (TMS 98/0505), IITA-TMS-IBA980581 (TMS 98/0581), IITA-TMS-IBA30572 (TMS 30572), NR8082, and IITA-TMS-IBA011368 (TMS 01/1368, Vitamin A/Yellow variety). These

varieties have the following qualities: Yield =35 45t/ha, Starch = 15 - 22%, Dry matter = 30 - 42%, good branching habit and high flour yield. TME is a collaborative work between IITA and NRCRI while NR 8082 was specifically developed by NRCRI. Majority of these varieties have high yielding capacity per unit area of land are tolerant to major prevalent diseases like Cassava Mosaic virus Disease (CMD). Cassava Bacteria Blight and cassava pest like cassava mealy bug (*Pheacoccus manihotts*). This must have necessitated the need for their multiplication especially cassava among other crops (NEPAD, 2014).

The new rapid multiplication technique (RMT), tagging disease free plants and using them for propagation offers reliable solution to manage the disease as lesser quantity of setts are only required under Rapid Multiplication Technique of cassava. In addition to the above, the planting materials of newly released varieties can be easily multiplied in large scale and supplied to the Considering the bottle necks, the experiment was formulated to standardize a rapid method of propagation technique in cassava using portrays system. Protray system is the most efficient system in developing uniform sized disease-free seedlings materials. It has advantageous than raised bed system *viz.*, précised use of seeds, production of pest and disease-free seedlings, uniform growth and seedling establishment due to the presence of ball of earth during transplantation and etc. Seedling production in protrays can easily be monitored and transported to the site/field, where the planting is taken up. This system of propagation has shown a great potential in vegetatively propagated crops like cassava. Varieties of cassava and planting techniques have been released into the Nigerian agricultural landscape through the national varietal release committee but the adoption of these technology still low among cassava farmers.

**MATERIALS AND METHODS**

The study was conducted in Oyo State, Nigeria Oyo State has its capital in Ibadan and approximately located between latitude 8.1<sup>0</sup>N and longitude 3.4<sup>0</sup>E. Oyo states is the 6<sup>th</sup> most populous state in Nigeria. Oyo State has a land mass of 27,460 km<sup>2</sup>, population density of 204/ km<sup>2</sup> and it is ranked 14th by size in Nigeria with population of 7,976, 100 in 2024 given an average annual growth rate of 2.47% (World Bank, 2015). It has 33 Local Government Areas (World population review, 2025). Agriculture is the main occupation of the people of Oyo State. The climate in the state favours the cultivation of crops such as maize, yam, cassava, millet, rice, plantain, cocoa tree, palm tree and cashew. Livestock like poultry, cattle, sheep, goats, and pigs are additionally raised for sales and consumption. The Yoruba people constitute the main ethnic group in the state. Multi-stage sampling technique was employed in this study. The first stage is the purposive selection of Oyo state. The second

stage involved the purposive selection of two local government areas ( ) because of the predominance of cassava farmers in the local government area. In the third stage, four (5) communities were purposively selected from each of the above local government areas (making a total of 10 communities), The fourth stage then involved the simple random selection of 12 cassava farms from each of the selected communities making a total of 120 respondents which constitute the sample size of the study. Data collected were analysed using descriptive statistics and Probit empirical model. Specifically, Logit regression model was used for analysis of the determinants of adoption of RCSMT.

The Logit model are specified in implicit form as seen in equation (1):

$$P_i (y_i = 1/X) = \Phi (X_i^T, \beta), \dots\dots\dots (1)$$

With the assumption that the random variables  $y_i$  are independently distributed, equation (1) states that the probability that the  $i$ th farmer will adopt RCSMT,  $P_i (y_i = 1)$ , is a function of the vector of explanatory variables,  $X_i$ , and the unknown parameter vector,  $\Phi$  (Gujarati 2009).

The empirical model of the logit model employed can be expressed as in equation (2):

$$Y_i = \beta_0 + \beta_1 X_i + \dots\dots\dots (2)$$

Where:  
The dependent variable ( $Y_i$ ) is a dummy variable where an adopter of RCSMT is scored 1, and non-adopters are scored 0.

$Y$  = Adoption of RCSMT (Adoption = 1, non = 0)  
 $X_i$  is a continuous explanatory variable and expressed as:

- $X_1$  = Age of farmers (in years)
- $X_2$  = Education status
- $X_3$  = Marital status (Married = 1, Not married =0)
- $X_4$  = Household size (Number of persons in a household)
- $X_5$  = Farming experience (in years)
- $X_6$  = Total farm size (in hectares)
- $X_7$  = Income (per annum)
- $X_8$  = other occupation
- $X_9$  = Extension contact (in months)
- $X_{10}$  = Cooperative membership (membership = 1, Non = 0)
- $X_{11}$  = Compatibility and accessibility
- $U$  = Error term

**RESULTS AND DISCUSSION**

The results from table 1 reveals the socio-economic characteristics of the respondents. It reveals that majority (73.3%) of the respondents were male while, 26.7% were female. This implies that men constitute a greater percentage of those who engaged in cassava production in the study area. Though, gender issues have showed no significant effects on agricultural production and technology adoption (Doss and Morris, 2012). Most (50%) of the respondents were

between the age of 41-50 years and while few (1.7%) were 61 years and above. The mean age of the respondent was 42 years. This implies that the respondents are still within their economically active age groups, perhaps will be proactive and ready to adopt new technology. Age is said to be a primary latent characteristic in adoption decisions. However, there is contention on the direction of the effect of age on adoption, the ability of a farmer to bear risk and be innovative has been reported to decrease with age (Nwaru, 2014).

Table 1 also shows that 37.5% had secondary education, 28.4% had primary education, only 10% had tertiary education and 20.8% had no formal education. Education appears to play an important role in adoption of any innovations. This implies that educated farmers are expected to be more receptive to improved farming techniques adoption compared to the non-educated counterparts. This is confirmed by Bembridge (2018), who opined that education accelerates the overall development of farmers which enables them to make fruitful use of existing resources and accurate assessment of new ones. Majority (74.2%) of the respondents were married, 16.7% single, 4.2% divorced and 5.0% were widowed with mean household size of 6 persons. This implies that married people dominate in agricultural activities in Oyo State. The high percentage distribution of married farmers could be to ensure food security to the household. Also, as seen on table 1, Majority (85%) of the respondents operates on less than 4acres of land, 5% operates on 5-10 acres of land, while 10% of the farmers had more than 11acres of land. The mean farm size of the respondents was about 4hactares. This shows that they were small scale farm holder which might be associated with problem of land acquisition and may inhibits their willingness to adoption technology. However, smallholder farmers play a major role in agricultural activities (food production) of any nation (Kansanga et al., 2019). Pertaining to

farming experience, 45.8% of the respondents have been farming for more than 15 years, while 29.2 % have been farming for about 6-10years with the mean years of farming was 16years. This implies that most farmers in this study area are adults and well experienced farmers. Experience is a major factor in the adoption of technologies and could serve s as an advantage for increased investment and technology utilization (Okoye, 2019). This is also affirmed by Atoma (2015) who stated that experience is a valuable asset in farming, it shapes farmer's opinion and guides their decision-making prowess. Result on table 1 also, Table 11 indicates that 38.3% of the respondents used both hired and family labour, while 33.3% and 28.3% practiced hired and family labours respectively. The cost of hired labour is being met by increase in production. According to Nell (2008), hired labour was estimated to account for

70% of all farming cost incurred and impacted heavily on farm profitability. In respect to income, larger percentage (58.3%) of the farmers earned less than ₦200,000/season, 21.7% earned between ₦201,000.00 and ₦400,000.00/season, while 20% earned above ₦401,000.00/season. The estimated mean income was ₦257,000. Judging by the small farm size of the respondents coupled with the general low levels of farm income, it implies that majority of the farmers in the study area are still operating at the subsistence level. Also, 32.5% of the respondents were solely into crop farming, 45.8% were into crop and livestock farming while, 10% of the farmers supported their farming business with other self-employed occupation, 11.7% were into paid employment.

Results from Table 1, also shows that majority, (81.5%) of the respondents did not have any contact with extension agents, while only about 7.5% had extension agent contact in the study area. This implies that extension information service delivery is low among the rural farmers in the study area.

**Table 1: Socio-economic characteristics of the respondents Characteristics**

Characteristics	Frequency (n= 80)	Percentage	Mean
<b>Sex</b>			
Female	32	26.7	
Male	88	73.3	
<b>Age</b>			
<30	20	16.7	
31-40	38	31.6	
41-50	60	50.0	
>51	2	1.7	<b>42years</b>
<b>Marital status</b>			
Married	89	74.2	
Single	20	16.7	
Divorced	5	4.2	
Widowed	6	5.0	
<b>Education status</b>			
No formal education	<b>25</b>	20.8	
Primary	34	28.4	
Secondary	<b>45</b>	37.5	

Tertiary	12	10.0	
Adult/vocational	4	3.3	
<b>Household size</b>			
<5	67	55.8	
6-10	42	35.0	
>11	11	9.2	<b>6person</b>
<b>Farm size (ha)</b>			
<4	68	85.0	
5-10	4	5.0	
>11	8	10.0	<b>4ha</b>
<b>Farming experience</b>			
<5	9	7.5	
6-10	35	29.2	
11-15	21	17.5	<b>16years</b>
>16	55	45.8	
<b>Extension contact</b>			
Yes	98	81.7	
No	22	18.3	
<b>Labour type used</b>			
Family	34	28.3	
Hired	40	33.3	
Both	46	38.3	
<b>Income (₦)</b>			
<200,000	70	58.3	
201,000-400,000	26	21.7	
>401,000	24	20.0	<b>₦238041.67±147453.59</b>
<b>Other occupation</b>			
Crop farming only	39	32.5	
Crop and Livestock farming	55	45.8	
Self employed	12	10.0	
Paid employment	14	11.7	

Source: Field survey data, 2025

#### Types of Cassava Varieties planted adopted in the study area

Table 2, presents the Various types of cassava varieties planted in the study area. The major types of cassava

varieties identified in the study area were IITA-TMS-TMS980505 (73.3%), followed by IITA-TMS-IBA011368 (Yellow root), (65.0%), TME419 (54.2%) and IITA-TMS-IBA070593 (50.0%).

**Table 2: distribution of the type of cassava varieties planted in the study area**

Types of cassava Varieties	Frequency	Percentage
TME419	65	54.2
IITA-TMS-TMS980505	88	73.3
NR8082	59	49.2
IITA-TMS-TMS30572	45	35.7
IITA-TMS-IBA011368 (Yellow root)	78	65.0
IITA-TMS-IBA070593	60	50.0
Both local and improved	36	30.0

Source: Field Survey, 2025 (\*Multiple response)

#### Adoption and source of information on RCSMT

Results from Table 3 reveals that almost all (66.7%) of the respondent were not aware of RCSMT, while only few 33.3% were aware and heard knowledge of RCSMT in the study area. Also, from Table 3 results shows that majority (48.3%) of the farmers had never adopted RCSMT, only (39.2%) have fully adopted RCSMT and are still using it while 12.5% adopted and later discontinue the use of RCSMT. This implies that awareness and adoption of RCSTM is low among

rural farmers in the study area. The low level of adoption could be attributed to the location/decentralization of research Institutes in Oyo State. The main source of information on RCSMT in the study area were cassava Sales agent (47.5%), through Friends and family (44.2%) and Farmers association/cooperatives (35.0%). Also, 28.3% of the farmers had been using RCSMT for about 5years with the average years of usage to be 4years.

**Table 3: Adoption and source of information on CLM as feed for WAD goats**

Variables	Frequency	Percentage
	Yes	%
Have you heard about RCSTMT	40	33.3
Did you adopt		
No	58	48.3
Adopted and later discontinue	15	12.5
Adopted and still waiting	47	39.2
<b>Source of information</b>		
Radio	18	15.0
Television	24	20.0
Social media platforms	38	31.7
Farmers association/cooperatives	42	35.0
Extension agents	11	9.2
Friends and family	53	44.2
Cassava Sales agent	57	47.5
<b>Duration of use of CLM as feed</b>		
<5	34	28.3
6-10	8	6.7
>10	5	4.2
<b>Mean</b>	4.09±6.063	

Source: Field Survey, 2023 (\*Multiple choice)

#### Knowledge and Perception of Rapid cassava stems multiplication Technique

Table 4, revealed farmers perception of rapid cassava stems multiplication technique in the study area. Farmers displayed great knowledge on the process involved in RCSMT with clear understanding that; techniques require using tip of cassava stem ( $\bar{x}$ = 4.32), lesser quantity of set is required ( $\bar{x}$ = 4.10), technique requires selecting stem of improved varieties only ( $\bar{x}$ =4.05), shallow depth allowed for planting a mini-stem ( $\bar{x}$ = 4.01), optimum spacing requirement is 10cm X 10cm ( $\bar{x}$ = 4.00), use of semi-hard woody stem ( $\bar{x}$ = 3.92), planting of the mini-stem requires spraying a mixture of chemical ( $\bar{x}$ =3.78), technique may requires

using both improved and local varieties of choice ( $\bar{x}$ =3.64), 4-6 node is required for the mini-stem using semi-hard woody stem ( $\bar{x}$ = 3.54) and maximum depth of 2 nodes mini-stem should be 1.5cm ( $\bar{x}$ = 3.00). Farmers response proved that they are well groomed and acquainted on procedures involved in RCSMT in the study area. However, respondent disagreed to the fact that pre-sprouting of mini-stem should be done in nursery beds ( $\bar{x}$ = 2.83) and nursery bed with mini-stem using semi-hard woody stem should be planted vertically ( $\bar{x}$ = 2.57). This could be as a result of the farming experience of cassava farmer in the study area that believes that cassava cultivation does not requires nursery preparation.

**Table 4: Distribution of Respondents on Knowledge and Perception of Rapid Cassava Stem Multiplication Technique**

S/N	Knowledge and Perception of RCSMT	Mean	Std. Deviation
1.	Technique requires selecting stem of improved varieties only	4.05	2.543
2.	Planting of the mini-stem requires spraying a mixture of chemical	3.78	1.588
3.	Technique requires using both improved and local varieties of choice	3.64	1.597
4.	Shallow depth allowed for planting a mini-stem	4.01	1.512
5.	Use of semi-hard woody stem	3.92	2.042
6.	4-6 node is required for the mini-stem using semi-hard woody stem	3.54	1.368
7.	Maximum depth of 2 nodes mini-stem should be 1.5cm	3.00	1.404
8.	Using tip of cassava stem for multiplication techniques	4.32	1.042
9.	Planting the mini-stem vertically using the tip of cassava in the nursery bed	2.85	1.402
10.	Optimum spacing requirement for cassava stem is 10cm X 10cm	4.00	1.236
11.	Selection of physiologically matured and resistance variety stems	2.98	1.690
12.	Pre-sprouting mini-stem in nursery beds or perforated polyethylene bags	2.83	1.393
13.	Use of sharp objects such as secateurs, knife and cutlass for cutting mini-stem	3.81	2.372

14	The numbers of node cutting depend on inter-node length, stem diameter, plant age and weather condition	2.65	1.452
15	Nursery bed with mini-stem using semi-hard woody stem should be planted vertically	2.57	2.012
16	Lesser quantity of set is required	4.10	1.362

Source: Field Survey, 2025 (\*Multiple choice)

#### 4.3 Factors influencing adoption of RCSMT

Table 5, shows the result of factors influencing the adoption of RCSMT, results from the table was deduced from 5-point Likert-like scale analysis with weighted mean of 3.0. That is, any factors influencing adoption of improved cassava varieties that is less than 3.0 was considered negative (disagree) while those variables on factors influencing adoption of improved cassava varieties that scored above or equal

3.0 were considered to be positive, as such, the respondents agreed that those activities influenced their RCSMT. Thus, results revealed that; production of quality and high produces ( $\bar{x}$ = 4.34), the method is simple to use ( $\bar{x}$ = 4.26), does not require large hectares of land ( $\bar{x}$ = 3.91), accessibility of technology (3.81) were the major factors influencing the adoption of RCSMT in the study area.

**Table 5: Distribution of Respondents according to Factors influencing Adoption of RCSMT**

S/N	Variables	Mean	Std. Deviation	Rank
1	It gives quality produce and high yield	4.34	1.491	1 <sup>st</sup>
2	The method is simple to use.	4.26	1.325	2 <sup>nd</sup>
3	It does not require large hectareage of land to produce.	3.91	1.537	3 <sup>rd</sup>
4	Technology is accessible.	3.81	1.770	4 <sup>th</sup>
5	Requires advanced modern tools	2.08	1.260	11 <sup>th</sup>
6	Technique can be practiced on a small plot.	3.68	1.663	5 <sup>th</sup>
7	Does not require much labour.	3.18	1.307	7 <sup>th</sup>
8	Technique does not favour all type of improved cassava varieties.	2.68	1.881	8 <sup>th</sup>
9	Techniques involve so many steps	2.59	1.254	9 <sup>th</sup>
10	Optimal yield of root is not achieved	3.57	1.915	6 <sup>th</sup>
11	Technique causes more outrage of disease.	2.33	2.095	10 <sup>th</sup>
12	Does not produce much of roots.	1.86	1.431	12 <sup>th</sup>
13	Does not produce much of roots.	1.57	0.321	13 <sup>th</sup>
	<b>Grand Mean</b>	<b>3.58</b>	<b>1.641</b>	

Source: Field Survey, 2025 (\*Multiple choice)

#### Determinants of adoption of RCSMT in the study area

Logit regression model was employed to analyse the determinants of adoption of RCSMT in the study area. From the result in Table 6, the Nagelkerke R<sup>2</sup> was 0.628 which indicates that about 62.8 % of the factors influencing adoption of RCSMT of the respondents were jointly explained by the independent variables included in the model. The Chi-Square of 74.01 (p<0.05) was significant attesting to the goodness of fit of the model. The results reveal that education (p<0.05) and income of the famers are positive and significant determinants, while farming experience is negative and significant determinant of the intensity of adoption decision. As anticipated, the coefficient of educational level (0.771) was significant at 5% and had a positive correlation with improved cassava production technologies in the area. This implies that more educated farmers are most likely to adopt farming technology, that is the higher their level of education the greater the chances of adopting cassava production technologies increases by 2.5 %. This conforms with the findings of Bengeza et al. (2023)

who stated that educated farmer have ability to read, access information and make rational decision that will aid their agricultural production. Also, education attainment aids in having a favourable mental attitude of appreciating new technology especially those that are of information-intensive and management intensive practices ( Onyeneke, 2017).

Against a prior expectation, the coefficient of the years of the farming experience (-0.812) of the respondents had an indirect relationship with technology adoption and was significant at a 5% significance level. This means as years of farming experience increase by one year, the adoption decreases by 2.2. The findings of Saliu et al., (2016) and Sekumade and Toluwase, (2014) were in agreement with the above attestation of a positive relationship between technology adoption and farming experience. Furthermore, the coefficient of income level of the respondents (0.000) had a positive relationship with adoption of RCSMT and it is also significant at 5%. This implies that the higher the income of cassava farmers the higher their probability of adopting improved technology to enhance their

productivity. This agrees with Adebajo et al., (2020) that identified Income as a major indicator of farmers' livelihood. This collaborated with the findings of

Owuor et al., (2014) that adoption of improved crop production technologies increased farmers

**Table 6: Logit Regression Parameter Estimates**

Variables	Coefficient	Z	Sig.
Age	-0.054	0.648	0.421
Marital Status	0.164	0.120	0.729
Education		5.035	0.025
Household size	-0.002	0.000	0.990
Farming experience	-0.182*	5.233	0.022
Farm size	0.003	0.005	0.944
Other occupation	0.541	1.776	0.183
Income	0.000**	5.702	0.981
Extension contacts	-0.466	0.158	0.459
Cooperative membership	-.217	3.869	0.803
Compatibility and accessibility	2.218**	0.042	0.113
Constant	-1.155	-1.095	0.174
<b>Model summary</b>			
Likelihood ratio: 0.643			
Nagelkerke R <sup>2</sup> : 0.628			
Chi-square = 74.01			

Source: Field Survey, 2023 (Significant at 1% (\*\*\*), 5% (\*\*) and 10% (\*).

#### 4.4 Constraints to Cassava Technology Adoption

Table 7 shows the constraints to adoption of RCSMT in the study area, The result shows that; poor access to information relating to RCSMT ( $\bar{x}$ = 4.45), Poor access to extension services ( $\bar{x}$  = 4.43), Kimbl et al., (2021) could assert to the wide ratio of extension agents' farmers in many developing countries and poor motivation of the change agents while discharging their duties. This result agrees with the findings of Ogundeji (2022), who discovered a serious gap in information knowledge between extension agents and

farmers, which hinders dissemination and implementation of feasible agricultural innovations. Poor road network ( $\bar{x}$ = 4.37), Lack of technical know-how ( $\bar{x}$ =4.33), inadequate mechanized equipment ( $\bar{x}$ = 4.25), cost of production ( $\bar{x}$ = 3.66), cost of improved varieties ( $\bar{x}$ = 3.60), lack of quality planting materials ( $\bar{x}$ =3.57), Low market price of produce and ( $\bar{x}$ = 3.14) were considered to be the major constrains highly hindering the adoption of RCSMT in the study area among all other factors .

**Table 7: Distribution of Respondents According to Constraints to technology Adoption**

Variables	Mean	Std. Deviation
Lack of quality planting materials	3.57	1.814
Low market prices	3.14	1.510
Poor access to extension services	4.43	1.946
Cost of production	3.66	1.128
Poor road network	4.37	1.350
High cost of improved varieties	3.60	1.184
Low sprouting of stems	2.45	1.364
Poor weather conditions	2.82	1.277
Poor technical know-how	4.33	1.062
High cost of storage facilities	2.83	1.751
Inadequate mechanised operation	4.25	1.023
Poor access to loan	2.55	1.014
Poor access to information on RCSMT	4.45	1.960

Source: Field Survey, 2025 (\*Multiple choice)

## CONCLUSION

The study showed that most of the farmers in the study area, are not aware of RCSMT. Only few adopt RCSMT in the study area, with their source of information being cassava stems sales agent, family and friends and farmers cooperatives. The study further indicated that, education, farming experience and income are significantly associated with the adoption of Rapid cassava stem multiplication techniques in the study area.

## RECOMMENDATION

Based on the findings from the study, the study therefore recommends:

1. Extension agents should beef up their responsibilities of disseminating recent cassava technical information to the end users (farmers) and motivate them to adopt more improved cassava technologies.
2. Government should continuously support/motivate and increase the number of extension personnel in the study area in order to improve the agricultural extension service delivery thereby enhancing achievement of the objectives of the rapid cassava stem multiplication techniques adoption/Programme to thus, improving the standard of living of rural farmers in Oyo State, Nigeria.

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