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Analysis of Intensity of Adoption of Odourless Fufu Processing Technology by Pro vitamin A Cassava Variety Processors in Anambra State of Nigeria; An Implication to Health and Nutritional Food Security

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ABSTRACT

Intensity of adoption of odourless fufu processing technologies by Pro vitamin A Cassava variety processors in Anambra State of Niger was studied. One hundred and twenty respondents were randomly selected using purposive and multi stage random sampling techniques. A well-structured questionnaire and interview scheduled were employed to collect primary data. Mean and standard deviation, Tobit analytical model and principal component analysis were employed to address the objectives of the study. The determinant factors to intensity of adoption of odourless fufu processing technology were age of the processors, household size, membership of organization and off farm income, The constraints to fufu odourless fufu processing technology in the study area were poor access to credit, high labour cost, poor access to extension services, high cost of cassava roots and high cost of transportation. The need to enhance processors access to extension services, and processors were encourages to form or join organization were proffered

Keywords: Intensity, Adoption, Odourless fufu, Processing, Technologies, Pro vitamin A, Cassava variety, Processors.

INTRODUCTION

In rural areas of many developing countries where cassava is their staple food, micronutrient deficiency such as vitamins is most outstanding (Onunka,Ume, Ekwe and Silo, 2017).Vitamin A deficiency (VAD) as reported by, Ume, Isiocha, Aja and Chukwu, (2016) is prominent among young children and pregnant women, and hence capable of causing poor eye sight, reduced immune function, and retarded growth and development. Cassava is an important dietary food for the tropics and some countries in Africa, with intrinsic features of having ability to survive in marginal soil and rainfall, high source of food energy, year-round availability, appropriateness to contemporary farming and food systems in Africa and provides an alternative when the harvest of other crops fails (Kwatia, 2006; International Institute of Tropical Agriculture,(IITA), 2014). Cassava is rich in starch but low in protein and many micronutrients (vitamins, lead, zinc and iodine), which many of these micronutrient lost through long and tedious processing. However, these deficiencies could be redressed using bio fortification. In cassava, bio fortification changes the color of cassava roots from white to deep yellow, due to the increase in pro-vitamin A content and lower dry matter concentration, hence affecting the taste (Eke Okoro and Nnaji, 2012). Bio fortification could be carried out using traditional breeding methods or modern biotechnology (Karuwi and Ezuma, 2005, Ihekoronye, 2009). In Nigeria, the Federal Government in conjunction with IITA and NRCRI, developed TMS varieties that is rich in carotene (Pro vitamin A, varieties), included NR07/0326, NR07/0506, NR07/0497, NR07/0499, NR07/0427, NR07/0432 (Eke-Okoro and Njoku; 2013), Umucass, 44, 45, and 46 NR07/0220, IITA-TMS IBA 070593 and IITA-TMS IBA 070557(IITA,2014).

Cassava is consumed in processed form amongst, fufu (Nweke and Enete, (2004) Ayinde, et al; 2005; Ihekoronye, 2009). Fufu is a fermented white paste made from cassava and it is ranked next to gari as an indigenous food of most Nigerians in the South West and South East. Fufu is prepared traditionally mostly in Southern Nigeria by women at village level, working individually or prearranged into informal groups or cooperatives, with their fufu products usually in wet form with an offensive odour and perishable with a short shelf life (Nweke, et al,2001; Ayinde, Shaolu, Adewuiyi and Agbonlaho, 2005). The offensive characteristic odour of fufu according to Nweke and Enete, (2004) detests to large number of the consumers, hence dwarfing considerably its acceptability especially in most public functions and eating places. Therefore, for fufu to have wide acceptability, entails producing of fufu that is odourless. Amos, et al; (2013) stated that odourless fufu processing can be best achieved through cassava roots undergoing the following processes; Sorting- Weighing-peeling-Washing-Soaking-Pulping and Sifting-Sedimentation - Dewatering - Granulating - Drying - Sieving - Milling Blending-Packaging. The cassava root that is processed through these processing technique, the mash do not only has characteristic aroma but has smooth texture and inelastic mash, and grey, creamy white in colour (Ejiofor and Ukpai; 2009). The aforesaid characteristics of fufu as asserted by Eke-Okoro and Nnaji; (2012) are influenced by cassava varietal differences, type of water used and frequency of changes of water, differences in dry matter content and the quality of the tuber. Other factors that could affect the physical quality of fufu are delay in processing cassava tubers and increase in the length of soaking (Hani, 2001).

Fufu processors in the study area are always advised to use roots of “Pro vitamin A, varieties in preparing of odourless fufu because of its attendant benefits. These gains as stipulated by Ekwe and Ekwe; (2005) included easily digestible due to meagre starch content, rich in protein, carbohydrates and phosphorous, low in fat and has high energy value, gluten free, has smooth texture, and high levels of β-carotene (precursor to vitamin A). However, the technologies of odourless fufu production have been disseminated to the processors in the study area through extension agents of Women in Agriculture (WIA), a women extension arm of the State Agricultural Development ADP) for onward adoption in order to enhance the processors’ productivity and income (Ume, et al;2017).

In order to effectively pursue the aforementioned goals of technology adoption as per enhancing the health, nutritional and food security in the study area, the need to identify the drivers to the adoption of the technology and factors that could speed the adoption and diffusion becomes very imperative. In this study, the researchers employed the combinations of client, farmers and technology characteristics to explore the prime aim of the study. This is in divergence to Ekwe and Ekwe, (2005) who implored only client characteristics to study technology adoption, while Ifediora; 2007 and Amos, et al; (2013) used technology characteristics. Specifically, the objectives of the study are to, describe the socioeconomic characteristics of the fufu processors, determine the intensity to the adoption odourless fufu technology and identify the constraints to the technology adoption in the study area.

Mapof Anambra State

MATERIALS AND METHODS

Study Area

Anambra State of Nigeria was the study area. Anambra State is located between latitude $5^0$38 'N and $6^0$47 'E of Equator and longitude $6^0$36 'N and $7^0$21 'E of Greenwich Meridian. The state has population estimates of population figure of 4.184 million people according to 2006 National Population Commission, (NPC), 2016). The state has annual rainfall range of 1600 mm-1700 mm, mean temperature of 27 ^{oC} and average relative humidity of 65%. The inhabitants are processors of major food crop such as cassava, yam, cocoyam, maize, rice, sweet potato, vegetables and fruits. They still engage in other off farm income, included trading, vulcanizing, automobile mechanic, saloon and civil service

Sampling Procedure and Sample Size

A purposive and multi-stage random sampling technique was used to select Agricultural zones, Local Government Area, community and processors. In the first stage, three Agricultural zones were purposively selected because of numerous cassava processors. The selected zones were Anambra, Awka and Onitsha. In stage two, two LGAs were purposively selected from each of the selected zones based on proximity to the researcher. The selected LGAs were Anambra East and Oyi, for Anambra Zone, Idemili North and South, while for Awka zone, Awka North and South. These brought a total of six LGAs. In the third stage, two communities were selected from each of the LGAs, totaling twelve communities. Finally, ten processors were selected randomly from the each of the selected twelve communities. This brought to a total of one hundred and twenty processors for detailed study.

Method of Data Collection

Structured questionnaire and informal or oral interview was employed to collect primary data.

Data Analysis

Percentage responses, tobit analytical model and principal component analysis were used to address the objectives of the study.

Model Specification

The Tobit model is widely employed determine the intensity of adoption of technology using maximum likelihood in homoscedastic normal distribution. It is used where the dependent variable has the likelihood of skipping unconnectedly to zero or any other doorsill. The estimation method according to Ebo, (2009) is based on suppressed dependent variable and often called censored regression model or limited dependent variable.

Tobit model was developed by Tobin (1997), could be expressed as:

$$y^* = x\beta + e \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

where β is a vector anonymous coefficient, x is a vector of autonomous variable and with e being an error term that is considered to be autonomously dispersed with variance of S^2 and mean zero, o. Y* is a unobservable and dormant variable. If the information for the reliant or dependent variable exceeds the restraining factor, zero as may be in this context, Y is the observable and continuous variable. Supposedly, that Y is held constant at zero. The scenario can be symbolized in mathematically form by equations

$Y = y^*$ if $y^* > Z_0$ .... (2)

$Y = 0$ if $Y^* < Z_0$……………….......................... (3)

Where: Y_0 denotes the restraining factor. The aforementioned equations (15 and 16) may perhaps connote a suppressed distribution of the information. The Tobit model can be employed for approximation of the worth of Y as a determinant of a set of descriptive variables (X) evaluated by the odds that Y_i is greater than zero ($Y_i \geq 0$) (Oladele and Kareem, 2003). The intensity or extent of adoption of technologies as opined by Maddala, (1983) could be stated as

$\sum(Y)$ is $\sum Y = x\beta\ f\ (z) + \alpha\ f(z)$ and $Z = x\beta/\sigma$…………………………….(4)

Where f (k) signifies the cumulative normal distribution of z, f(z) denotes the value at unit normal density. z represents the z score for the standard error of the error term. The β connotes the direction of the effect. The intensity of adoption of odourless fufu processing technologies in the study area can be represented as:

$Y=f(X_1,X_2,X_3,X_4,X_5,X_6,\ldots x_n+e)$..........................(5)

Where: y = percentage (%)
X_1 = Age of Farmer(in years), X_2 = Household size (No.), X_3 = Off farm income (Dummy), X_4 = Credit access (Naira), X_5 = Membership of organization (dummy), X_6 = Extension Services (Dummy),X_7 = Educational Level (Years), X_8 =Distance to all weather road (km), X_9 = Distance to nearest market (km); X_{10} = Distance to nearest market (km); X_{11} = Ownership of milling machines, X_{12} = Distance to milling plant (Km); e = error term.

Principal Component Analysis (PCA).

The limitations to fufu processing by small scale processors were analyzed using principal component analysis (PCA). The Model of Principal Component (PCA) is stated thus:

$x=x1,2,x3,\ldots,xp$………………………………...(6)

$\propto_k=\propto_{1k1},\propto_2 K,\propto_3 k,\ldots,\propto pk$……..... (7)

$\propto_K^T x = \sum_{j=1}^{p} \propto_{KjXj}$ …….….……….. (8)

$Var = [\propto_K^T X]$ is maximum…………...(9)

Maximise subject to

$\propto_K^T \propto_K = 1$ …………............................... (10)

$Cov = [\propto_1^T \propto - \propto_2^T \propto] = 0$ ……….…. (11)

The Variance of each of the Principal Component:

$Var[\propto_k X] = \lambda_k$ ……………….......... (12)

$S = \frac{1}{n-1}(X-\bar{X})(X-\bar{X})^T$ ……….…... (13)

$S_i = \frac{1}{n-1}\sum_{i=1}^{n}(X_i-\bar{X}_i)\,(X_I-\bar{X}_i)$ .... (14)

Where: X = vector of 'P' Random Variables; $\propto k$ = Vector of 'P' Constraints; λk= Eigen Value; T = Transpose; S = Sample Covariance Matrix.

RESULTS AND DISCUSSION

Description of Processors' Socio-economic Characteristics

The summary of major socio-economic characteristics of odourless fufu processors are presented in Table 1

Table 1: Variables description and their descriptive statistics

Variable	Description	Mean	Std
Intensity of fufu techn. Adoption	No.of farmers practicing odourless fufu processing divided by the total no. of fufu processors during given processing period		
Age	Age of the household head in years	0.4227	0.0023
Education	Educational status of the household head where; 1= literate, 0=illiterate	0.4708	0.2431
Extension Services	Access; 1, otherwise;0	0.3509	0.2273
Credit access	Access to credit; 1 Otherwise=yes, 0=no	0.6701	0.5410
Household Size	No .of people that resides and fed by the household head	0.3267	0.0432
Organization	Membership of organ; 1; otherwise, 0	0.4609	0.0012
Processing experience	Farm experience of household head in years	0.3261	0.3419
Distance to milling plant	Distance of household residence to milling plant in kilometer	0.2341	0.3732
Labour Availability	Access to labour; 1;, otherwise; 0	0.4317	0.0321
Distance to nearest market (km)	How far the household resident from the nearest market in km	0.4709	0.0076
Distance to all weather road	How far the household resident from all weather roads in km	0.6589	2.0980
Ownership of milling machines	Ownership; 1; otherwise; 0	0.0154	2.7213
Cassava roots	Quantity of fufu in Kilogram	0.5374	0.0079

Source; Field Survey, 2019

On average, the age of farmers was about 42.27 years with respondents age ranges from 22 - 72 years. This connotes that youthful individuals as reported by Ekwe and Ekwe, (2005) could take risk involved in adoption of technology because of among other reasons long planning horizon. The finding of Ume, Eluwa, Okoro, and Silo, (2017) did not concur to above assertion. They opined that aged processors through years of experimentations and observations gained experiences in overcoming intricacies involved in adoption of technology processing for high quality odourless fufu. Large household of labour age and available ensures proxy of family labour at virtual minimal cost. More so, 67% of the processors had access to credit from both formal and in formal organization. Access to credit, by processors would help in overcoming financial constraints and create opportunities to use fufu processing inputs (Onunka, et al; 2017).

Additionally, averagely, the years of processing experience of the processors was about 7.4 years with respondents processing ranges from 4-22 years. Experienced processors as opined by Ume, et al; (2017) could easily access, collate and analyze information as regards to a given technology for onward adoption or discontinue adoption. In addition, 47% of the processors had formal education, hence could be prudent in resource management and receptive to innovation adoption according to IITA, (2014). Moreover, 37% of the processor had access to extension services either from government and non-governmental organization (NGO). The poor extension outreach could be corrected to wide ratio of extension agent and processors in the study area. The important of extension lies on innovation dissemination to farmers in order to improve their wellbeing. Also, on average, the intensity of adoption of odourless fufu processing technology by the processors in the study was 0.56756, indicating that out of total number of fufu processors in the study area, about 56% of the them practice odourless fufu processing practice. The average quantity of amount of cassava roots of Pro vitamin A variety used by fufu processors was 53.7 %. This implies that the quantity of that type of cassava root used by the processors in the study area were far less compare to other varieties in the study area. Therefore, the need to compel farmers in the area to increase the area of the crop planting is very vital, to ensure that adopter of the processing technology will not discontinue the adoption.

Intensity of Adoption of Odourless Fufu Processing Technology Using Tobit Model Analysis

The decision and intensity of processors' adoption of technologies may be expressed with two mutually exclusive processes of decision to adopt the technology and the level, which could be addressed with Probit and Tobit models respectively. Nevertheless, this research utilized, Tobit model to determine the intensity of odourless fufu processing technology adoption at household levels. The problem of multicollinearity, heteroscedasticity and endogenety are major problems in cross sectional data. As a result there is a need to be check and addressed before analysis. The existence of heteroscedasticity in the error terms does not pose a serious problem in terms of obtaining consistent estimates as it only causes a bias in the estimates of standard errors and used robust standard error. Variance inflation factors (VIF) was computed for all explanatory variables that were used in the Tobit model and the result shows VIF were less than 10 that indicating multicollinearity was not a problem.

The result of the analysis revealed that the overall fitness of the model had found to be statistically significant at less than 1% probability level. Hence, the result of Tobit analysis as contained in Table 2 showed that the coefficient of age of the processors was positive and statistically significant at 5% level, implying that the intensity of fufu processing technologies adoption had unswerving correlation with age of processor.

Table 2 Intensity of Adoption of Odourless Fufu Processing Technologies

Intensity of adoption	Coefficient.	Std. Error	t-value	P > t
Constant	0.75109	0.22311	3.366	0.002
Age (years)	-0.32170**	0.12010	2.68	0.017
Household size(N)	0.2431*	0.23156	1.050	0.003
Off farm income (dummy)	0.26010***	0.02600	10.003	0.000
Access to credit(dummy)	0.2202*	0.14265	1.540	0.013
Membership of organ.(dummy)	0.35651***	0.01698	20.996	0.000
Extension Services (Dummy)	0.14507**	0.02332	6.220	0.016
Educational Level	0.03428	0.01097	3.125	0.031
Distance to all weather road (km)	-0.4321***	0.02461	-17.558	0.123
Distance to nearest market (km)	0.0043	0.00412	1.044	0.012
Ownership of milling machines	0.25740**	0.00432	59.583	0.0134
Distance to milling plant	0.0321	0.0098	3.275	0.009
X^2	0.42747***			
Log likelihood	-142.43210			
Total sample size	120			

***, **, *** are significance at 10, 5, 1%**
Source; Field Survey; 2019

This connotes that as the processors advance in age by one year, could tantamount to increase in the intensity of adoption of fufu processing technologies by 32.1%. This finding confirms with the finding of Ihekoronye, (2009), who opined that aged processors have higher propensity of being endowed with experiences through series of observations and experimentation to enhance the intensity of adoption of the technology. On the contrary, Nweke, et al; (2001) posited that the negative sign identity of the variable could be attested to the fact that aged processors may not have the required energy to surmount the strains and stresses that are involved in processing of odourless fufu.

The coefficient of household size had direct correlation with intensity of fufu technology adoption and statistically significant at 10% alpha level. This implies that an addition of one member that is of labour to household members could increase the intensity of adoption of odourless fufu processing technologies by 24.3 %. Household size of labour age is proxy for cheap labour, especially for poor resource processors for accomplishment of the procedures involved in odourless fufu processing (Hani; 2001). Additionally, the coefficient of membership of organization had indirect influence on the intensity of adoption of odourless fufu processing technologies as revealed in Table 2 The variable was statistically significant at 1%

level, signifying that membership of organization could lessen the intensity of adoption of odourless fufu processing by 35.7 % in contrast to non-members. The highly commitment of cooperators to cooperative activities to the detriment of their vocations could be associated to the sign identity of the variable. The finding of Amos, et al; (2013) did not concur to the above assertion. They posited that members of organization through interaction or cross breeding ideas enhances the technology adoption intensively

Moreover, the positive and significant coefficient of access to credit by household head was in correspondence with other studies (Nweke and Enete; 2004 Ume, et al; 2016; Onunka, et al; 2017). This signifies that as processors has more access to credit in procuring inputs required in odourless processing, the higher the odds of increasing their intensity of adoption of the technologies by 22.0%. Kwatia, (2006) inferred that availability of credit had a positively influence on the intensity of adoption of technology by lessening the indispensable capital limitations that processors, especially poor resource ones encounter during their initial investments. Conversely, Ashiedu, (2000) asserted high interest rate, repayment modalities, diversion of credit to non-profitable ventures, dearth of information on credit facility availability and high collateral may be akin to the sign identity of the coefficient. The positive identity of off farm income could correlated to the fact money accruing from this financial source could be used to offset labour cost involved in implementing the technology adoption In contrary, the finding of Nweke and Enete; (2004) observed that processors could prefer engaging in off farm employment that has higher relative returns than in processing vocation given the risk in the vocation. Availability of off-farm income increases the likelihood of adopting and intensifying odourless processing technology among adopters by 26%

As well, the coefficient of extension services was positively signed and significant at 5% risk level. The implication is that an additional one extension agent contact with the processor could increase the intensity of adoption of odourless fufu processing technologies by 14.6%. The adoption of technology by farmers is based on innovation-diffusion theory, that farmers are more stimulated to adopt technology when considerably information is available to them. Such information in the study area and most sub-Saharan Africa is disseminated by extension agents (Ekwe and Ekwe, 2005). Also, ownership of milling machines was also found to be positively and statistically significant impacts on the intensity of odourless fufu processing technology adoption at 5% alpha level. An increase of household milling machine by one would increases the intensity of odourless fufu processing technology adoption by 25.7 %. This indicates that milling machine ownership increases the likelihood of households to procure more cassava roots for odourless fufu processing and apply them on time through cooperative membership. Furthermore, distance to the all-weather roads had negatively sign identity and significantly at 1% alpha level. The implication is that the further way processors residence from all-weather roads has fewer prospects to increase the intensity of adoption of odourless fufu processing technology. Here, as processors' abode distance to all weather roads increases by one kilometer, the intensity of adoption of odourless fufu processing technology would declines by 43.2%. Processors that had negative sign of all-weather road coefficient according to Ifediora, (2007) have attribute of being less market-oriented and pursued subsistence oriented objectives.

Determination of limitation to Adoption of Technology Using Principal Component Analysis (PCA)

Principal Component Analysis (PCA) of limitations to adoption of odourless fufu technology by processors in Anambra State, Nigeria is shown in Table 3.

Table 3; Results of the Principal Component Analysis of Constraints to the adoption of oduorless fufu processing Technology

Constraints	Eigen-Value	Difference	Proportion	Cumulative
Poor access to Credit	3.4532	0.42417	0.2953	0.2678
Poor access to extension Services	3.32744	1.29876	0.2844	0.4146
High cost of cassava roots	2.2831	0.37654	0.2786	0.5091
Un availability of Milling Machines	2.2053	0.35432	0.2612	0.5324
Pollution problem	2.1187	0.24567	0.2516	0.7059
High cost of Labour	2.0643	0.22378	0.2345	0.7326
High cost of transportation	1.0468	0.21356	0.1201	0.8076
Price of fufu	0.0987	0.20132	0.0654	0.8619
Bartlett Test of Sphericity				
KMO	0.783			
Chi-Square	2656.010***			
Rho	1.00000			

Source; Field Survey, 2019

PCA is utilized in converting correlated information with assorted variables into limited numbers of interrelated variables. The result revealed that the number of principal components retained using the Kaiser Meyer criterion were four in line with Eigen-values greater than 1. The retained components explained 8619% of the disparities of the components incorporated in the model. The Kaiser-Meyer-Olkin which measures sampling adequacy (KMO) contributed a value of 0.783 and the Bartlett test of sphericity of 2656.010 was perceived to be significant at 1% alpha level. This implies the important of utilizing the set of information for factor analysis. The problem of poor access to credit had an Eigen-value of 3.4532 and was ranked 1st in the order of prominence as asserted by the processors. The dearth of access to credit could be associated to high interest rate as charged by lending institution (Onunka, et al; 2017). This was followed by poor access to extension services with Eigen-values of 3.32744. The problem of extension in Nigeria is according to ,Ume, et al; (2016) poor motivation of the change agents by government agency concerned, leading to dearth transfer of innovations to the farmers, hence affecting negatively Agricultural development

Also, high cost of cassava roots and unavailability of milling machines in the study with Eigen-values of 2.2831 and 2.2053 were ranked 3th and 4th respectively in order of their occurrence and importance. The high cost of cassava roots especially during the dry season when the soil is very hard, thus posing difficulties in the cassava root harvesting (Igbeka, 2013).Additionally, the unavailability of milling machines could be related to among others high exchange rate of Dollar to Naira (Nigeria currency), thereby resulting to high purchasing costs of the machines and its accessories (Ifediora, 2007). As well, pollution problem was ranked 8th with Eigen-Value of 2.1187. The cassava root peels could generate foul odour on decomposition, leading to difficulty in breathing and sleeping, coughing, stomach and loss of appetite, eye, nose and throat irritation, disturbance from external environment and annoyance (Ariyomo, 2017). Furthermore, effluent resulting from squeezing of mashed cassava roots as opined by Nweke, et al; 2001) could result in dissipation in waterways; kill plants, eutrophication and foul odour.

Moreover, high costs of labour and transportation with Eigen value of 2.0643 and 1.0468 were ranked 6th and 7th respectively Fufu processors often utilize the services of women and children especially in the area of peeling, sieving and other activities in fufu processing. The costs of hiring the services of these people as stated by Ume, Kaine and Ochiaka; (2020) are often exorbitant especially peak of farming season, hence dwarfing the processors profitability. On high cost of transportation also, could be related to bad road network as evidenced in most rural areas in Nigeria (Nweke and Enete, 2004)

CONCLUSION AND RECOMMENDATION

Based on the result, the following conclusions were derived; The determinant factors to intensity of adoption of odourless fufu processing technology were age of the processors, household size, membership of organization and off farm income, Also, the constraints to fufu odourless fufu processing technology in the study area were poor access to credit, high labour cost, poor access to extension services, high cost of cassava roots and high cost of transportation.

The following recommendations were made

I. There is need to ensure processors' access to educational programmes such as adult programme, conferences and workshops in order to improve their processing efficiency and effectiveness.

II. There is need for govt. to recruit more number of extension agents and as well quip the change agents with knowledge of odourless, fufu processing technology.

III. Cassava processors should be exposed to credit facilities of commercial banks and microfinance bank at reduced interest rate by government agencies responsible for that.

IV. There is need to encourage old and experienced processors to continue in the activities by solving some their constraints to their processing and the new entrants to join also by the government agencies concerned.

V. There is need for government to put waiver in imports of agro processing machines in order to curtail maximally high cost of processing equipment, for high efficiency of cassava processing.

VI. There is need to encouraged processors to form or join cooperative societies, in order to enjoy both cooperative benefits, included ease access to government resources.

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