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ASSESSMENT OF SMALLHOLDER FARMERS' PARTICIPATION IN CASSAVA VALUE ADDITION IN IBARAPA CENTRAL LOCAL GOVERNMENT AREA OF OYO STATE, NIGERIA

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ABSTRACT

This study assessed the level of smallholder farmers' participation in cassava value addition in Ibarapa Central Local Government Area of Oyo State, Nigeria. Multi stage sampling technique was used to select 100 respondents. The data for the study were collected with the use of structured questionnaire ana analyzed using both descriptive and inferential statistics (Chi square and PPMC). The result revealed that television (99.0%) research institutes (83.3%) and fellow cassava processor (80.0%) were the sources of information on cassava valued addition. The results showed that respondents always participate in equipment hiring ($\bar{x}$= 1.83) and land clearing ($\bar{x}$=1.76), the smallholder farmers participated in value addition such as garri ($\bar{x}$ =1.73), animal feed ($\bar{x}$ = 1.68), cassava flour and ethanol production ($\bar{x}$ =1.62). Inadequate credit facilities ($\bar{x}$=1.73), high cost of processing machine ($\bar{x}$=1.64) and bad road network to the market ($\bar{x}$=1.59) were the major constraints affecting smallholder farmers' participation in cassava value addition in the study area. It is concluded that marital status, educational status, age, household size and monthly income were significant since their p-value is greater than 0.050. From the finding it was concluded that farmers group should establish community-based savings and credit schemes that allow young farmers and processors to pool their resources and access credit and also explore credit guarantee schemes that can provide financial backing to young entrepreneurs in the cassava value addition.

Keynotes: *Smallholder, Farmers, Cassava, Participation, Value Addition*

INTRODUCTION

Cassava (*Manihot esculenta*) is a starchy root crop and a major source of food security in Africa because of its ability to grow in low quality soil, its resistance to drought and disease, and flexible cultivation cycle (Meridian Institute, 2013). According to (FAOSTAT, 2013), Nigeria is the world's leading cassava producer with about 21 percent share in the global market. A small fraction of cassava output in the country is produced for commercial use in the livestock feed, ethanol, textile, confectionery, and food industries, while the majority is produced by smallholder farmers for subsistence or small scale processing in form of granules, pastes, flours etc. or consumed as a green vegetable, which provides vitamin A and B. Cassava tubers can be stored underground until needed thus making it an ideal food security crop (Nweke, 2013). Cassava is the most widely consumed food staple in Nigeria (Sanni *et al.,* 2019).

Cassava (*Manihot esculenta*) has been argued as one of the most cost-effective and nutritionally vital native African tubers (Chinsinga, *et al.,* 2012). Cassava is a recurrent, vegetative bred shrub, cultivated through the plain tropics. It is a dearth resilient crop grown mostly in temperate areas and adds appreciably to the nourishment and livelihood of many African farmers. Cassava can be transformed into a considerable number of commodities varying from conventional and innovative food products, to livestock feedstuffs, ethanol and starch and its many derivatives which is the value addition aspect of it (Ganeshkumar *et al.,* 2017). In Nigeria today, cassava has been changed from a low yielding dearth spare crop to a high producing cash crop, with its many different uses in livestock feeds, food and source of raw materials for agro-industry (Theodore, 2001). The cassava value addition in Nigeria has a lot of significant value addition processes and many of these processes remain untapped (Alene *et al.,* 2013).

1.1 Objective of the study

The broad objective of this study is to assess the level of smallholder farmers' participation in cassava value addition in Ibarapa Central Local Government Area of Oyo State, Nigeria.

Specific objectives were to:

i. describe the socioe-conomic characteristics of the respondents in the study area;
ii. identify the sources of information on cassava value addition among the respondents;
iii. identify the different cassava value addition practices that the smallholder farmers participated in the study area;
iv. determine the level of smallholder farmers' participation in cassava value addition in the study area;
v. ascertain the respondents' level of perception in cassava value addition in the study area;
vi. identify the constraints affecting the smallholder farmers' participation in cassava value addition in the study area;

1.2. Hypothesis of the study

Ho: There is no significant relationship between the socioe-conomic characteristics of the respondents and their level of participation on cassava value addition in the study area

2.0 Methodology

2.1 Study area

Ibarapa Central Local Government is situated in the state of Oyo State, Nigeria. This specific local government area is positioned between the latitudes of 7° 15' N and 7° 55' North of the Equator, and the longitudes of 3o 16' E and 3o 30' East of the Greenwich Meridian (Macmillan, 2006). The land area of Ibarapa Central local government area encompasses a total of 440 square kilometers. It is bounded to the north by Ibarapa North local government area, to the east by Ibarapa East local government area, and to the south and west by Ogun State. The predominant population in this study area consists of individuals from the Yoruba ethnic group, with a minority representation from the Igbo and Hausa ethnic groups. According to the 2006 census conducted by the National Population Commission, the population of the area was recorded at 102,979 individuals. Within this local government, the communities of Igboora and Idere are encompassed, with the headquarters situated in Igboora. The people are predominantly Yoruba and the area is blessed with fertile land. The main occupation of the people is farming mainly food and cash crops such as cassava, maize, yam, vegetable and cocoa, oil palm and kolanut. And raising of livestock such as cattle, poultry, snail and some other ruminants such as goats.

2.2 Population of the study

The populations of the study consist of smallholder farmers involved in cassava production and value addition in Ibarapa Central Local Government Area of Oyo state

2.3 Sampling techniques and sample size

Multi stage sampling techniques was used in the selection of 100 respondents for the study. The first stage involved the purposive selection of 5 wards namely; Idere, Oke-Oba Oke-Odo, Pako, Oke-Iserin out of 12 wards in Ibarapa Local Government area, this was done because of dominance of farmers involved in cassava production and value addition activities. The second stage involved random selection of two (2) villages from each of the 5 wards, namely each Osumare, Oba, Lanlate, Igangan, Idofin, Saganun, Koso, Onigbio, Imofin, Iwafin, giving a total of 10 villages. In the third stage, ten (10) smallholder farmers were selected through simple random techniques in each village to give a total of hundred (100) that form the sample size for the study.

2.4 Source of data and data collection

Primary Source of data was obtained through the use of well-structured questionnaire.

2.5 Data analysis

Data were analyzed using both descriptive and inferential statistics. Descriptive statistics such as mean, frequency and percentage were used to achieve the objective i-vi while the hypothesis was analysed using chi square and PPMC.

3.0 RESULTS AND DISCUSION

3.1 Socio economic characteristics of the respondents

Age

Table 1 showed that 41.6% of the respondents were between the age of 31-40 years, 36.7% of the respondents were between age of 20-39 years, 14.2% of the respondents were between the age of 41-50 years and 7.5% were 51 years and above. The mean age was 35 years. This implies that, farmers in the study area are still in their active age and therefore corroborates readily available in for participation in cassava value addition

Sex

Results in Table 1 showed that 69.2% of the respondents were male while 30.8% were female. This implies that male dominate in the

cassava value addition in the study area. This is an indication that there is more male who participate in cassava production and value addition than their counterpart females in the study area. This could also imply that decision making on issues of ensuring value addition to cassava production is mostly done by males than female farmers in the study area. This result is also consistent with the findings of Obidike (2015) who reported that majority of cassava farmers in Abia State were male.

Marital status
Table 1 further showed that majority (75.8%) of the respondents were married, 18.3% of the respondents were single and 5.8% were divorced. This implies that majority of the respondents in the study area are married and in order to secure the family welfare, the household heads may decide to go into cassava value addition so as to have more streams of income to cater for the family's needs

Educational status
Table 1 showed that above average (59.2%) of the respondents had tertiary education, 17.5% of the respondents had no formal education, 12.5% of the respondents had secondary education and 10.8% had primary education. This implies that above average of the respondents is educated which can enhance their decision to participate in cassava value addition. This finding agrees with Ndidi and Fadeyibi (2010) who stressed the importance of education amongst women that increased understanding of their need for farming and that education is an asset for adoption of decisions. And increased education was associated with increased adoption of value addition.

Household size
Table 1 showed that majority (91.7%) of the respondents had 1-4 households and 8.3% of the respondents had 5-8 household. The mean household size of 4 persons showed that most of the respondents had a fairly low number of persons living in their households. A smaller household size may limit the availability of labour for cassava processing activities, particularly those that are labour-intensive, such as peeling, grating, and drying. This could mean that households might struggle to scale up their value addition processes without external labour or mechanization. This contradicts with the findings of Ogechi and Nwankwo (2011) who found larger household size among cassava processors.

Secondary occupation
Table 1 also showed that 35.0% of the respondents' secondary occupation were artisans, 29.2% were civil servants, 23.3% were trader while 12.5% were tailors This implies that the secondary occupation of most of the respondents This shows that most of the respondents engaged in diverse livelihood activities to acquire more income to support family responsibilities and the additional income at some points can also be used in cassava value addition

Value addition processing experience
Furthermore, majority (87.5%) of the respondents had 1-10 years farming experience and 11.5% of the respondents had 11-20 years farming experience. The mean value addition experience is 10 years. This implies that majority of the respondent in the study area have enough years of experience in cassava value addition which could leads to high profit from the enterprise. This is supported by the findings of Daramola, Osanyinlusi, and Owolarafe (2010) had a higher processing experience is important in good agricultural production

Membership of cooperative society
Table 1 showed that majority (94.2%) of the respondents were member of cooperative society while 5.8% of the respondent were not member of cooperative society. This implies that most of the respondents in the study area are member of cooperative society which may allow them to have access to loan and information with regard cassava value addition

Access to extension service
Results revealed that majority (79.2%) of the respondents had access to extension services, while 20.8% of the respondents had no access to extension services. This implies that most of the respondents had access to extension services which may aid to improve the knowledge of new innovations in cassava value addition. This is in accordance with the work of Daramola *et al.,* (2010) who supported Food and Agricultural Organization's (FAO) recommendation that farmers are expected to be visited at least once in every two weeks (fortnightly), which translates to a minimum of 15 extension contacts in a farming season

Mode of land ownership
Table 1 showed that majority (71.7%) of the respondents leased the land in which they use for either cassava farming or cassava value addition, 13.3% of the respondents purchased their land for either cassava farming or cassava value addition, 9.2% inherited their land in which they use for farming, while 5.8% used community owned land. This implies that most respondents

in the study area leases the land in which they use for either cassava farming or cassava value addition and the leased land often comes with less security compared to owning land. This could lead to uncertainty and instability for farmers, as they may not have long-term assurance that they can continue using the land. This uncertainty might discourage farmers from making significant investments in the land, such as improving soil fertility, adopting sustainable farming practices, or planting higher-yielding cassava varieties that require longer growing.

Source of finance

Results in Table 1 showed that 37.5% of the respondent's source of finance was from cooperative society, 33.3% sourced finance from personal savings, 23.23% sourced finance from bank while 5.8% sourced from friends and families. This implies that respondents sourced finance from cooperative society and their personal savings. The fact that a significant portion of respondents rely on cooperative societies for finance suggests that these organizations play a crucial role in providing accessible funding options for smallholder farmers, who often face challenges in accessing traditional bank loans due to lack of collateral or credit history, cooperative societies can be a critical source of financial support.

Monthly income

Table 1 showed that more than half (56.0%) of the respondents earn ₦10000 – ₦49999, 37.0% of the respondents earns ₦50,000-₦99,999, 5.0% of the respondents earn ₦100,000-₦149,999, 2.0% of the respondents earn above₦ 200,000. The mean income is ₦54,500. This implies that the respondents in the study area were low-income earners. With a monthly income in the ₦10,000 to ₦49,999 range, many smallholder farmers may have limited disposable income after covering basic living expenses. This could restrict their ability to invest in cassava value addition activities, which often require initial capital for purchasing equipment, raw materials, or even for setting up small processing units.

Table 1: Personal characteristics of the respondents

Variables	Frequency	Percentage	Mean
Age			
20-30	44	36.7	
31-40	50	41.6	35 years
41-50	17	14.2	
51 and above	9	7.5	
Sex			
Man	83	69.2	
Female	37	30.8	
Marital status			
Single	22	18.3	
Married	91	75.8	
Divorced	7	5.8	
Religion			
Islam	49	40.8	
Christianity	62	51.7	
Traditional	9	7.5	
Educational level			
Primary	13	10.8	
Secondary	15	12.5	
Tertiary	71	59.2	
Non-formal	21	17.5	
Household size			
1-4	110	91.7	
5-8	10	8.3	
Secondary occupation			
Artisan	42	35.0	
Trading	28	23.3	
Civil servant	35	29.2	
Tailoring	15	12.5	
Years of cassava value addition experience			
1-10	105	87.5	
11-20	15	12.5	
Member of Cooperative society Yes	113	94.2	
No	7	5.8	
Access to extension services			
Yes	95	79.2	
No	25	20.8	
Monthly Income ₦			
100,000-500,000 500,000-1000,000	49	40.8	
Above 1000,000	62	51.7	
Cassava farming experience Less than 10	9	7.5	
11-20	60	50.0	
Access to credit facilities	60	50.0	
No	117	97.5	
Mode of land ownership	3	2.5	
Inheritance	11	9.2	
Leased	86	71.7	
Purchased	16	13.3	
Community owned	7	5.8	
Sources of finance			
Bank	28	23.3	
Personal savings	40	33.3	
Friends and relatives	7	5.8	
Cooperative	45	37.5	
Monthly income ₦	66		₦55,50
50000 – 99999	47	39.2	
100000 – 149999 200000 and above	5	4.2	
	2	1.6	

Source: Field survey, 2025

3.2. Sources of information on cassava value addition

Table 2 showed the Sources of information on cassava value addition in the study area. The result showed that television (99.0%) had the highest percentage, closely followed by research institutes (83.3%), fellow cassava processor (80.0%), radio (76.7%), ministry of agriculture (75.0%) and Cassava processing association (73.3%) as sources of information on cassava valued addition. This implies that that television, radio, cassava processing association, Internet, Newspaper and Magazine, Fellow cassava Processor, ministry of agriculture and cassava processing association are the major sources of information on cassava value addition in the study area. This study supports the findings of Lwoga, *et al.,* (2011) who reports that radio is effective in communicating farming-related information to rural farmers. Uzuegbu, (2016) also reports that radio and television is a good information communication channel, cheap and flexible to use.

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Table 2: Sources of information on cassava value addition

Sources of information	Yes	No
Television	**108(90.0)**	**12(10.0)**
Radio	92(76.7)	28(23.3)
Research Institute	100(83.)	20(16.7)
Bulleting and posters	80(66.7)	40(33.3)
Cassava processing association Extension Agent	88(73.3) 86(71.7)	32(25.0) 34(28.3)
Newspaper and magazines	80(66.7)	40(33.3)
Friends and Neighbours	64(53.3)	56(46.7)
Internet	86(71.7)	34(28.3)
Ministry of agriculture	90(75.0)	30(25.0)
Fellow cassava Processor	96(80.0)	24(20.0)

Source: Field survey, 2025. Figures in parentheses are in percentage

3.3 Level of smallholder farmers' participation in cassava value addition

Results in Table3 showed the level of smallholder farmers participation in cassava value addition. The first part revealed the level of participation in production of cassava which showed that equipment hiring ($\bar{x}$= 1.83) had the highest mean and was ranked first, closely followed land clearing ($\bar{x}$=1.76), input supply ($\bar{x}$ = 1.64) and planting ($\bar{x}$= 1.52) were 2nd, 3rd and 4th respectively. Furthermore, the second part revealed their participation in cassava processing which peeling ($\bar{x}$ = 1.68) ranked 1st, others include, sales of cassava products ($\bar{x}$ = 1.63), washing ($\bar{x}$ = 1.63) and transportation of cassava products ($\bar{x}$ = 1.57) were ranked 2nd, 3rd and 4th. The third part revealed the value participation of smallholder farmers in value addition which shows that garri ($\bar{x}$ = 1.73) had the highest mean and was ranked first. Others include; animal feed ($\bar{x}$ = 1.68), cassava flour and ethanol production ($\bar{x}$ = 1.62) were ranked 2nd and 3rd. Moreover, cassava chips ($\bar{x}$ = 1.29) had the least mean and was ranked 10th. This implies that the respondents always participate in equipment hiring, land clearing, input supply and planting in cassava production. Also, they always participate in processing activities such as peeling, sales of cassava products, washing and transportation and in value addition aspect they always participate in garri, animal feed, cassava flour and ethanol production. This is in line with assertion Flint, Woodruff and Gardial (2011) who also had a similar result. However, some respondents added value to have more than two cassava derivatives. For instance, some respondents processed their cassava into garri, fufu and tapioca at the same time.

Table 3: Level of smallholder farmers' participation in cassava value addition

Different cassava value addition	Always	Occasionally	Never	Mean	Rank
Production					
Equipment hiring	102(85.)	15(12.5)	3 (2 . 5)	1.83	1st
Land clearing	94(78.3)	23(19.2)	3 (2 . 5)	1.76	2nd
Input supply	82(68.3)	33(27.5)	5 (4 . 2)	1.64	3rd
Planting	76(63.3)	30(25.0)	14(11.7)	1.52	4th
Weeding	59(49.2)	53(44.2)	8(6.7)	1.43	7th
Harvesting	60(50.0)	36(30.)	24(20.)	1.30	10th
Storage of cassava stems	67(55.8)	44(36.)	9(7.5)	1.48	5th
Loading	64(53.3)	37(30.)	19(15.)	1.38	8th
Transportation	55(45.8)	47(39.)	18(15.)	1.31	11th
Off loading	66(55.0)	34(28.)	20(16.)	1.38	8th
Sales of fresh cassava	73(60.8)	29(24.)	18(15.)	1.46	6th
Cassava processing					
Peeling	87(72.5)	28(23.)	5(4.2)	1.68	1st
Washing	81(67.5)	33(27.)	6(5.0)	1.63	3rd
Grinding	59(49.2)	51(42.)	6(5.0)	1.41	9th
Fermentation	56(46.7)	53(44.)	11(9.2)	1.38	11th
Frying	64(53.3)	41(34.)	15(12.)	1.41	9th
Bagging	77(64.2)	24(20.)	19(15.)	1.48	8th
Packaging	77(64.2)	28(23.)	15(12.)	1.52	7th
Final stage processing to different products (garri, fufu, pupuru, cassava	74(61.7)	36(30.)	10(8.3)	1.53	6th
Storage of products	79(65.8)	29(24.)	12(10.)	1.56	5th
Transportation of cassava products	82(68.3)	24(20.)	14(11.)	1.57	4th
Sales of cassava products	85(70.8)	26(21.)	9(7.5)	1.63	2nd
Value addition					
Cassava flour	79(65.8)	27(22.)	14(11.)	1.62	3rd
Cassava bread	76(63.3)	33(27.)	11(9.2)	1.57	5th
Fufu	70(58.3)	41(34.)	9(7.5)	1.53	6th
Pupuru	59(49.2)	51(42.)	10(8.3)	1.43	7th
Cassava chips	53(44.2)	46(38.)	21(17.)	1.29	10th
Tapioca	57(47.5)	43(35.)	20(16.)	1.33	8th
Starch	54(45.0)	47(39.)	19(15.)	1.32	9th
Animal feed	81(67.5)	36(30.)	3(2.5)	1.68	2nd
Garri	91(75.8)	22(18.)	7(5.8)	1.73	1st
Ethanol production	81(67.5)	29(24.)	10(8.3)	1.62	3rd

Source: Field survey, 2025 Figures in parentheses are in percentage

3.4 Perception of smallholder farmers on cassava value addition

Results in Table 5 revealed the Respondents' perception on cassava value addition. The results showed that cassava value additions were usually more time consuming ($\bar{x}$=3.08) had the highest mean and was ranked 1st. Respondents asserted that they will continue to participates in cassava value addition even if the price cassava is expensive ($\bar{x}$=2.59) was ranked 2nd, respondents strongly agreed that access to timely and correct information about price and location to market products encourage business activities ($\bar{x}$=2.93) was ranked 3rd and inputs are usually unavailable ($\bar{x}$=2.92) was ranked fourth. Furthermore, respondents perceived cassava value addition requires regular contact with extension workers ($\bar{x}$=2.29). Cassava value addition was too complex ($\bar{x}$=2.09) had the least mean and were ranked 19th and 20th respectively. This implies respondents strongly perceived that cassava value additions are usually more time consuming, smallholder farmers will continue to participates in cassava value addition even if the price cassava is expensive, access to timely and

correct information about price and location to market products encourage business activities while they did not highly perceive that cassava value addition requires regular contact with extension workers and cassava value addition are too complex.

Table 5: Perception of Smallholder Farmers on Cassava Value Addition

Perception statements	SA	A	U	D	SD	Mean	Rank
Cassava value additions are usually more time consuming	56(46.7)	34(28.3)	20(16.7)	3(2.5)	7(5.8)	3.08	1st
I will continue to participates in cassava value addition even if the price cassava is expensive	47(39.2)	42(35.0)	20(16.7)	4(3.3)	7(6.8)	2.95	2nd
Inputs are usually unavailable	46(38.3)	36(30.)	27(22.)	4(3.3)	7(5.8)	2.92	4th
My co smallholder farmers who participates in cassava value addition influence me to do the same	35(29.2)	46(38.)	19(15.)	17(14.)	3(2.5)	2.78	5th
I enjoy reading/listening about the different cassava value addition	38(31.7)	39(32.)	24(20.)	9(7.5)	10(8.3)	2.72	8th
The main reason for participating in cassava value addition is to increase my income	28(23.3)	40(33.)	20(16.)	20(16.)	12(10.)	2.43	13th
Cassava value addition requires more capital	31(25.8)	33(27.)	26(21.)	24(20.)	6(5.0)	2.49	11th
Cassava value addition are 19(15.8) only for the educated people		33(27.)	46(38.)	9(7.5)	13(10.)	2.30	16th
Cassava value addition usually for the rich smallholder farmers only	27(22.5)	31(25.)	29(24.)	13(10.)	20(16.)	2.27	17th
Cassava value addition requires regular contact with extension workers	18(15.0)	40(33.)	29(24.)	15(12.)	18(15.)	2.21	19th
High labour is required in cassava value addition	18(15.0)	41(34.)	29(24.)	18(15.)	14(11.)	2.26	18th
Cassava value addition is too complex for my liking	11(9.2)	41(34.)	33(27.)	18(15.)	17(14.)	2.09	20th
Cassava value addition damage my environment	23(19.2)	40(33.)	23(19.)	22(18.)	12(10.)	2.33	14th
Cassava value addition makes one feel socially relevant	19(15.8)	45(37.5)	22(18.3)	24(20.0)	10(8.3)	2.33	14th
Am willing to increase my 36(30.0) farm land in order to venture into cassava value addition		24(20.0)	33(27.5)	20(16.7)	7(5.8)	2.53	10th
Producing cassava tuber and adding value to it makes cassava farming worth while	23(19.2)	34(28.3)	42(35.0)	11(9.2)	10(8.3)	2.41	12th
Producing and selling fresh cassava provides quick cash to meet family's needs	48(40.0)	20(16.7)	30(25.0)	11(9.2)	11(9.2)	2.69	9th
Processing cassava into cassava products improves household income	48(40.0)	31(25.)	19(15.)	16(13.)	6(5.0)	2.83	6th
Buying cassava for processing to products improves household income	55(45.8)	11(9.2)	30(25.)	18(15.)	6(5.0)	2.76	7th
Access to timely and correct information about price and location to market products encourage business activities	50(41.7)	29(24.2)	27(22.5)	10(8.3)	4(3.3)	2.93	3rd
Adequate information on market for processed cassava can encourage cassava value addition	54(45.0)	22(18.3)	23(19.2)	18(15.0)	3(2.5)	2.88	5th

Source: Field survey, 2025 Figures in parentheses are in percentage SA: Strongly agree; A: Agree U: Undecided D: Disagree SD: Strongly disagree

3.5. Constraints affecting smallholder farmers' participation in cassava value addition

Results in Table 6 showed the constraints affecting smallholder farmers' participation in cassava value addition. The result shows that inadequate credit facilities ($\bar{x}$=1.73) had the highest mean and was ranked first, closely followed by, high cost of processing machine ($\bar{x}$=1.64) was ranked second, bad road network to the market ($\bar{x}$=1.59) was ranked third, low return on cassava value addition ($\bar{x}$=1.56) was ranked fourth. The result further shows that inadequate contacts with extension personnels ($\bar{x}$=1.02) and Inadequate formal education ($\bar{x}$=0.94) had the least mean and was ranked fifteenth and sixteenth respectively. This implies that inadequate credit facilities, high cost of processing machine, bad road network to the market, low return on cassava value addition were the major constraints affecting smallholder farmers participation in cassava value addition in the study area. These aforementioned constraints might contribute to the low participation by the smallholder farmers in the study area. This result corroborates with the findings of Sanni *et al.,* (2009) who reported that 50.3% of the respondent in his study claimed inadequate capital is a severe constraint to smallholder farmers' participation in agricultural programmes. The result also showed that inadequate market linkage is a major constraint to engagement in the cassava value addition which also corroborate with the findings of Ndidi and Fadeyibi (2010). who reported that respondents strongly agreed that bad road network to the market is a major constraint in rural participation in agricultural programmes.

Table 6: Constraints faced the smallholder farmers' participation in cassava value addition

Constraints	Very severe	Severe	Not severe	Mean	Rank
Inadequate credit facilities	94(78.3)	20(16.7)	6(5.0)	1.73	1st
High-cost processing machine	83(69.2)	31(25.)	6(5.0)	1.64	2nd
Inadequate government support	68(56.7)	21(17.)	31(25.)	1.31	7th
Inadequate cooperative society	54(45.0)	38(31.)	28(23.)	1.22	11th
Inadequate contacts with extension personnels	33(27.5)	56(46.)	31(25.)	1.02	15th
Inadequate formal education	35(29.2)	43(35.)	42(35.)	0.94	16th
Poor access to information on value addition	47(39.2)	37(30.)	36(30.)	1.09	14th
Inadequate trainings on cassava value addition	47(39.2)	52(43.)	21(17.)	1.22	11th
Stressful nature of cassava value addition	53(44.2)	41(34.)	26(21.)	1.23	10th
Inadequate access to input supply	43(35.8)	41(34.)	36(30.)	1.06	13th
Inadequate agricultural insurance	57(47.5)	45(37.)	18(15.)	1.33	6th
Inadequate ready market	56(46.7)	43(35.)	21(17.)	1.29	9th
Inadequate storage facilities	60(50.0)	36(30.)	24(20.)	1.30	8th
Inadequate access to large expanse of land	82(68.3)	17(14.)	21(17.)	1.51	5th
Low return on cassava value addition	84(70.0)	19(15.)	17(14.)	1.56	4th
Bad road network to the market	85(70.8)	21(17.)	14(11.)		

Source: Field survey, 2025, Figures in parentheses are in percentage

3.6.1. Chi square and PPMC analysis showing the significant relationship between the socioe-conomic characteristics of the respondents and their level of participation in cassava value addition in the study area

Results in Table 7 revealed Chi square analysis showing the significant relationship between the socioeconomic characteristics of the respondents and their level of participation in cassava value addition in the study area. Result showed that marital status and educational status were

significant at 5 since their p-value is less than 0.050. This implies that marital status and education status have significant influence on the level of smallholder farmers' participation in cassava value addition. Married individuals may have greater responsibilities, such as providing for their families, which could motivate them to seek additional income sources like cassava value addition. The need to support a household could drive them to engage more actively in such activities to secure financial stability. Smallholder farmers with higher levels of education are likely to possess better business management skills, financial literacy, and a broader understanding of market dynamics. This knowledge can help them engage more effectively in cassava value addition, from improving processing techniques to navigating supply chains and marketing.

Also, sex, secondary occupation, membership of cooperative society, and access to extension services were not significant since their p-value is greater than 0.05. This implies that sex, secondary occupation, membership of cooperative society, and access to extension services status have no significant influence on the level of smallholder farmers' participation in cassava value addition

Table 7: Chi square analysis showing the significant relationship significant relationship between socioeconomic characteristics of the respondents and their level of participation in cassava value addition in the study area

Variables	χ^2	df	p-value	Decision
Sex	0.220	1	0.488	NS
Marital status	0.480	1	0.008	S
Educational status	4.596	2	0.000	S
Secondary occupation	2.795	3	0.424	NS
Membership of cooperative society	0.463	1	0.496	NS
Access to extension	0.842	1	0.359	NS

Source: Field survey, 2025, NS: Not significant, S: Significant

3.6.2 PPMC analysis showing relationship between some selected socioeconomic characteristics of the respondents and their level of participation in cassava value addition in the study area

Results in Table 7 further revealed PPMC analysis showing the significant relationship between the socioeconomic characteristics of the respondents and their level of participation in cassava value addition in the study area. Result showed that household size, processing experience and monthly income were positive which indicates a strong correlation on the smallholder farmers participation in cassava value addition and were significant since their p-value is less than 0.050. More so, age was negative which indicates a weak correlation on the level of women involvement in cassava value addition and was also significant. Which shows an indication that the higher the age of the smallholder farmers the lesser their participation in cassava value addition *Ceteri paribus*

Table 7.1 PPMC relationship between socioeconomic characteristics of the respondents and their level of participation in cassava value addition in the study area

Variable	R	p-value	Decision
Age	-0.006	0.001	S
Household size	0.017	0.002	S
Value addition experience	0.131	0.089	NS
Monthly income	0.082	0.005	S

Source: Field survey, 2025 NS: Not significant S: Significant

4.0 Conclusion

From this study it is concluded that majority of the respondents in the study were married educated smallholder farmers with mean age of 35 years who had average household size of 4 persons, more so they had average 10 years of cassava value addition processing and they earned 54, 500 naira monthly. It is also concluded that radio and television were the major sources of information on cassava value addition and they always processed their cassava into *garri* and cassava flour. The respondents revealed and strongly agreed that cassava value additions are usually more time consuming. It is also concluded that inadequate credit facilities, high cost of processing machine and bad road network to the market were the major constraints affecting smallholder farmers participation in cassava value addition in the study area. Results of the hypothesis shows that marital status, educational status, age, household size and monthly income have significant influence on the level of smallholder farmers participation in cassava value addition.

Recommendations

1. Farmers group should establish community-based savings and credit schemes that allow young farmers and processors to pool their resources and access credit and also explore credit guarantee schemes that can provide financial backing to young entrepreneurs in the cassava value addition.
2. Cassava processors association should collaborate with machinery suppliers to offer affordable processing machines to young farmers and processors and also encourage the sharing of equipment among smallholder

farmers and processors to reduce the cost of ownership.

3. Farmers should advocate for government investments in improving road infrastructure, particularly in rural areas where cassava is grown and they should explore alternative transportation options such as railways, waterways etc.
4. Government should encourage smallholder farmers and processors to establish markets closer to their production areas to reduce transportation costs and risks and they can also collaborate with logistics providers to develop cost-effective and reliable transportation solutions for cassava products.

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