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Effects of Farmers' Socio-economic Characteristics on their Perception on Cassava Production in Ondo State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author OVA designed the study and wrote the protocol. Author SDYA supervised the work. Authors OVA and RAA carried out all data collection and performed the statistical analysis. Author OVA managed the analyses of the study. Author OVA wrote the first draft of the manuscript. Author RAA managed the literature searches and author SDYA edited the manuscript. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

The study examined the effects of farmers' socio-economic characteristics on their perception on cassava production in of Ondo State. A multistage sampling technique was used to select 120 respondents and a well-structured questionnaire was used to elicit responses on socio - economic characteristics and other relevant variables for the study. Both descriptive and inferential statistics among which mean, Chi-square and Pearson Product Moment Correlation (PPMC), were used to analyse the data. Results showed that the mean age for cassava producers was 43 years and 77.5% were males. Majority of the respondents were married (90.8%) with an average household size of 10 and 85% had formal education. Small farm size was prevalent in the study area with most respondents (60.8%), having less than 2.0 hectares and 57.7% had less than 10 years of farming experience. The average annual income from cassava was ₦183,333.33 with an annual

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average of cassava yield of 711.6 kg. Responses to perception statements by farmers on cassava production had a grand mean of 3.1 and 3.3 mean score for attitudinal statements. The main source of information on cassava production was from co-farmers. Chi-square analysis showed a significant association between farmers' age ($\chi2 = 53.3$, $\rho \leq 0.00$), sex ($\chi2 = 36.3$, $\rho \leq 0.00$), marital status ($\chi2 = 178.9$, $\rho \leq 0.00$), education ($\chi2 = 102.3$, $\rho \leq 0.00$), household size ($\chi2 = 59.9$, $\rho \leq 0.00$) except for religion ($\chi2 = 1.03$, $\rho \leq 0.309$) and their perception on cassava production. The correlation analysis of income versus perception towards cassava added value showed r-value of 0.280 at 0.01 level of significance. It was therefore, concluded that, socio-economic characteristics of the farmers affected their perception of cassava production and recommended that farmers should embrace value addition so as to increase income generated from cassava production.

Keywords: Cassava; production; socio-economic characteristics; perception and information.

1. INTRODUCTION

Cassava (*Manihot esculenta crantz)* is reported to have originated from Brazil and it belongs to a group with 160 species that have demonstrated many beneficial qualities, such as, dormancy, drought resistance and good crop yield [1]. Africa is one of the continents of the world where some 600 million people are dependent on cassava for food [2]. Cassava is an important source of carbohydrate that provides food for over 60 million people in Nigeria [3]. It provides income for over 30 million farmers and large numbers of processors and traders [4]. Current production figures shows that, Nigeria is the largest producer of cassava with other top producers being Indonesia, Thailand, Democratic Republic of Congo, with an estimated output of 54 million metric tons in 2012 [2]. Cassava production enterprises play a very active role in household food security and welfare in Nigeria both in rural and urban settings with yield on farm trials ranging between 9.9 tons/ha and 17.3 tons/ha and it is capable of producing up to 50 tons/ha [1].

Various governments of Nigeria have tried several programmes, approaches and strategies aimed at improving the conditions of the rural poor and while some of the efforts are still on course, many have since gone moribund. One of such that is still on course is the Presidential Initiative launched in 2003 to promote cassava as a viable foreign exchange earner for Nigeria and also the development of the cassava production system in order to sustain the national demand [5]. Cassava as a crop has the potential to become an industrial crop thereby eliminating it from low status position of poverty alleviation and food security crop to that of global economic significance and importance [6]. According to UNIDO [5], it is believed that cassava can spur rural industrial development, helps raise income for producers, processors and traders while contributing to the food security status of its producers and consumers. In addition, cassava is principally a sustenance food to an industrial crop used in the processing of ethanol, starch, pellets and High Quality Cassava Flour (HQCF) for the export trade [5]. As a matter of fact, cassava has contributed to the socio-economic development and well-being of Nigerians, both as subsistence crop for household and a commodity for commercial operations [6]. Despite this overriding position of cassava in Nigeria agriculture, the perception of farmers and their attitude towards cassava can still be regarded as low. Farmers who engaged in the cultivation of cassava are often resource poor are peasant farmers and they do so at a subsistence level. The socio-economic characteristics and resources of individual households have been identified as basic factors influencing the food security status of households [7]. In a situation where the returns from agricultural production is not commensurate to the investment, agricultural production will be left in the hands of the elderly or the non-educated ones who cannot make informed decisions. This will further creates gap between agricultural production and food security.

Perception on the other hand is indispensable as it plays requisite roles in making it possible to have thoughts and beliefs about the empirical world [8]. Perception is defined as the process of building up and interpreting ones disposition by helping in determining motives behind a particular behaviour in drawing ones opinion about the motive [8].

For cassava production to attain its potential, especially, in its active role of ensuring food security, the socio-economic conditions of cassava producers must be known and their perception about cassava production must be examined for the desired change to take place in the sector. It is to this end that this paper aims to

examine the effects of farmers' socio-economic characteristics on their perception on cassava production in of Ondo State, Nigeria. The specific objectives of the study were to; ascertain the socio- economic characteristics of cassava farmers in the study area; examine the information sources used by the farmers in cassava production; determine the attitude of farmers towards cassava production; determine the income realized from cassava production; and determine the perception of farmers towards cassava production in the study area.

2. METHODOLOGY

The study was carried out in Ondo State, Nigeria. The State is located in the south western part of Nigeria and it shares boundaries with Osun and Ogun States on the western side, Ekiti and Kogi States in the North, Edo and Delta States in the East and the Atlantic Ocean in the South. The state covers 20,9955 s km with a population of 3,640,877 people [9]. Multi-stage sampling technique was used. Two Local Government Areas (LGA) out of the 18 LGAs in the state noted for cassava production were purposively selected and they were: Ose and Akoko South West LGA. Five communities were later randomly selected from each of the LGAs making a total of ten communities. Twelve respondents were interviewed from each community by means of structure questionnaire/ interview schedule, making a total of 120 respondents interviewed for the study. Data were analysed using descriptive statistics,, while Chi-square and Pearson Product Moment Correlation (PPMC) were used to test the hypotheses. Five - point Likert scale of Strongly Agree, Disagree, Undecided, Agree and Strongly Disagree was used to determine the respondents' perception and attitude towards cassava production. The scores of 5, 4, 3, 2 and 1 were assigned for positive statement respectively and reversed as 1, 2, 3, 4 and 5 for negative statements.

3. RESULTS AND DISCUSSION

The results from the study (Table 1) shows that majority (31.7%) of the respondents examined were within the age bracket of 41 – 50 years, while the mean age was 43 years. The involvement of these category of age group in cassava production is high which imply potential for high cassava production. This result corroborates the findings of Adebayo and Muhammad [10] on a socio-economic study, that, the average age was 42 and that most of the respondents were active and productive. Most of the cassava farmers in the study area were male (77.5%), while 22.5 % were female. This could mean that more men were involved in cassava production than the women in the study area. This is in agreement with the study of Yekinni et al. [11] in a study of contributions of cassava enterprises to household welfare, and found out that men are more involved in cassava production. Osikabor et al. [12], also confirms that males participate more than female in Agriculture.

Findings from the study also showed that only 12.5% of the respondents had no formal education while 87.5% of the respondents had educational level ranging from adult education, primary education, secondary education and tertiary education. The result implies that more educated people were involved in cassava production in the study area. This high level of education among the farmers, could likely affect the production of cassava, since, the farmers would make use of their educational advantage for improved farming practices and informed management decisions on their farms. This is in consistent with Yekinni et al. [11], that cassava farmers are fairly educated. More so, the result showed the mean household size of six and this indicates that the average household size is fairly adequate to provide family labour but this contradicts the findings of Babatunde et al. [13], which put average household size at 10. Further findings showed that 90.8% of the respondents were married, 6.6% were widowed while 2.5% were single. This could imply that farmers would likely place premium attention to cassava production because of the awareness on their part that they have more responsibilities to attend to. The marital status in the area would also likely increase the availability of family labour. The field result also showed that 46.7% of the respondents were Christians while 53.3% were Muslims. This has implication for extension services, since, all the cassava farmers hold on to a particular belief. The extension worker, working with them, must be conscious of what farm practices to disseminate and must ensure compatibility with the prevailing belief of the people. About 57.5% of the farmers had between 1 – 10 years of experience, 28.3% had experience of between 11–20 years, while 14.2% had above 20 years of experience. This report implies that, most of the farmers in the survey area were still new in cassava production and that their experience was still low. This notwithstanding, about 42.5% of the respondents

could be said to be well experienced and if optimally utilised, greater production of cassava could be realised from the farmers because of the ease of cultivation and adaptation associated with the crop. Table 1 further shows the total farm size cultivated by respondents in hectares. It showed that majority (60.8%) of the respondents had farm size of 0.1 – 2.0 hectares, while 39.2% had between 2.1 hectares and 5.0 hectares. In summary, an average cassava farmer cultivated a farm size of about 1.4 hectares. This implies a small farm size which will in turn affects household food security. The challenges of land tenure system could be a determinant factor for the farmers' inability to adequately access land use. Farm mechanization should be encouraged through access to fund and organizing farmers into cooperatives. The average cassava output was 230.05 kg. About 59.1% of the respondents had output below the average. This implies that the output in cassava production is low and could also imply a low income for the farmers. This is substantiated by the average annual income from cassava production of ₦183,333.33. This could equally discourage farmers from getting involved in cassava production despite the great potentials associated with cassava crop as seen earlier in the studies.

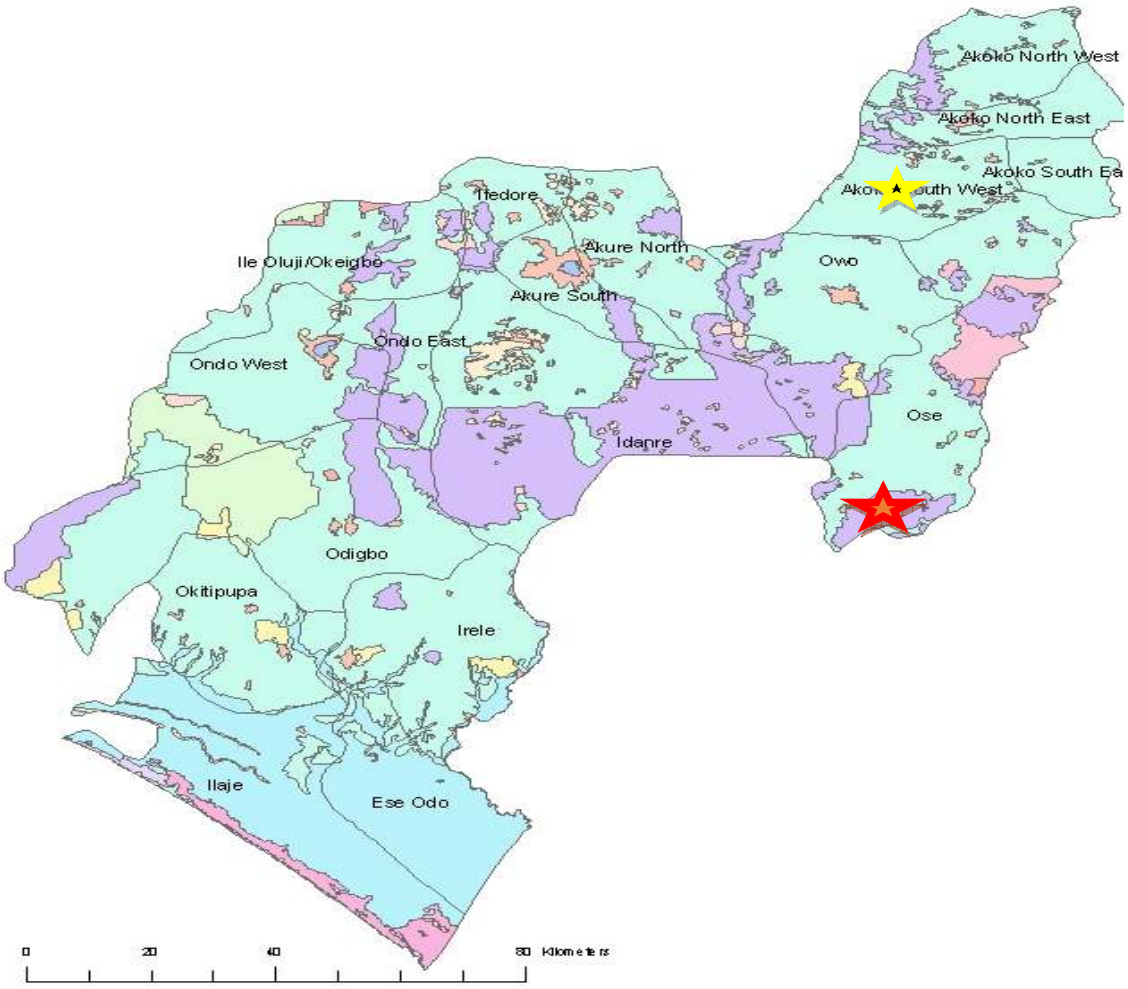

Fig. 1. Map of Ondo State showing the study area [9]

- *Ose LGA* *Akoko South West LGA*

Table 1. Socio-economic characteristics of respondents

K	Frequency	Percentage (%)	Mean
Age (years)			
Less than 30	28	23.3	
31 – 40	26	21.7	
41 – 50	38	31.7	43
51 – 60	19	15.8	
61 and above	9	7.5	
Sex			
Male		77.5	
Female		22.5	
Educational status			
No formal education	15	12.5	
Adult education	5	4.1	
Primary education	35	29.2	
Secondary education	62	51.7	
Post-secondary education	3	2.5	
Household size			
1 – 5	52	43.3	
6 – 10	65	54.2	6
Above 10	3	2.5	
Marital status			
Single	3	2.5	
Married	109	90.8	
Widowed	8	6.7	
Divorced	0	0	
Religion			
Christianity	56	46.7	
Islam	64	53.3	
Farming experience (years)			
1 – 10	69	57.5	
11 – 20	34	28.3	20
21 years and above	17	14.2	
Farming size (Ha)			
≤ 2.0	73	60.8	1.4
2.1 – 5.99	47	39.2	
6.0 & Above	0	0	
Cassava output			
≤ 100kg	13	10.8	
101 – 200 kg	58	48.3	
201 – 300 kg	35	29.2	230.1
301 – 400 kg	8	6.7	
Above 401	6	5.0	
Income from cassava (₦)			
≤ 100,000.00	15	12.5	
100,001.00 – 200,000.00	66	55	183.333.33
200,001.00 – 300,000.00	23	19.2	
Greater than 300,001.00	16	13.3	

Source: Data analysis (2013)

Information sources available to farmers on cassava production in the study area indicate that most of the farmers (88.4%) received information from their co–farmers, who have more knowledge on the activities (Table 2). Other information sources available to farmers includes; training (37.3%), research institute (13.9%), extension agents (51.2%), while also newspapers/magazines and electronic media were used by 54.3% and 75.6% respectively. This is in accordance to Osikabor et al. [12] that interpersonal communication and radio are

important in information sharing among farmers and that the overall relative worth of the access points is in the order: Interpersonal Communication (96.7%) > Radio (73.3%) > Meetings (58.0%) > Television (36.8%) > Posters (13.2%) > drama (9.0). (International reference) The study revealed that extension agents were active in the study area, and also revealed that farmers had access to research institutes and trainings from relevant bodies. This could impact positively on adoption of improved practises in cassava production.

Furthermore, Table 3, shows the distribution of respondents based on Added Value to cassava production. The result showed that most of the farmers were involved in at least one form of value addition to cassava. In making cassava as one of the ingredient for baking bread, 25.0% of the respondents supported the idea while 16.7% and 15.0% proposed cassava for industrial starch and animal feeds respectively. Also, 8.3% of the respondents preferred cassava chips while 10.0% preferred cassava been used for Tapioca. In making cassava flour, only 25.0% of the respondents bought the idea. The result implies that, respondents' participation in value addition, is generally low in the study area. This could also explain for the low income generation from cassava, as seen in the earlier part of the study. If the respondents gets highly involved in turning cassava to other products, income generated from cassava production can be improved.

3.1 Perception and Attitude of Farmers on Cassava Production

Tables 4 and 5 show the various responses of respondents towards some sets of perception and attitude statements. The grand mean of all the perception statements was 3.1, (Table 4) which shows that cassava farmers in the study area were generally undecided about some of the perception statements. This implies that cassava farmers in the study area were indifferent to the situation around them. The mean attitudinal statement was 3.3. This indicates that respondent's attitude generally tends towards undecided, that is, cassava farmers are indifferent. This indifferent attitude could hinder them from putting their best in cassava production in the study area.

Table 6 showed that at 0.05 level of significance, age, sex, marital status, education and household size had a significant relationship with cassava production. It was only religion that did not have a significant relationship with cassava production among the selected socio-economic characteristics. This is in line with (Hernandez-Peck, [14] that unlike the rest of the population, farmers tend to remain in farming beyond the normal retirement age though with less involvement in their activities. It is not surprising to see farmers in their 70s still farming full-time.

Table 2. Information sources of cassava farmers

Sources of information	Yes F (%)	No F (%)
Co – farmers	99 (88.4)	13 (11.6)
Training	28 (37.3)	47 (62.7)
Research institute	10 (13.9)	62 (86.1)
Books and journals	3 (4.2)	68 (95.8)
Newspapers, magazine and gazettes	51 (54.3)	43 (45.7)
Electronic media	68 (75.6)	22 (24.4)
Conference, seminar or workshop	8 (30.8)	63 (69.2)
Extension agents	42 (51.2)	40 (48.8)
Others	33 (42.3)	45 (57.7

Sources: Field survey 2013, grand mean 1.6

Table 3. Distribution of respondents based on involvement in value addition to cassava

Added value	Frequency (N=120)	Percentage %
Starch production	20	16.7
Bread	30	25.0
Cassava chips	10	8.3
Tapioca	12	10.0
Cassava flour (Gari, fufu, lafun)	30	25.0
Animal feed	18	15.0
Total	120	100.0

Source: Field survey, 2012

Table 4. Perception of farmers on cassava production in the study area (N=120)

S/N	Statement	SA F (%)	A F (%)	U F (%)	D F (%)	SD F (%)	Mean score	Remarks
1	Your present knowledge in the cassava production is enough (KNO)	11 (9.2)	27 (22.5)	5 (4.2)	57 (47.5)	20 (16.6)	2.6	Undecided
2	I am the best in cassava production in my Community (BST)	1 (0.8)	22 (18.3)	20 (16.7)	51 (41.5)	26 (21.7)	2.3	Disagreed
3	I always aspire to be better than my mates in My cassava output (ASP)	24 (20.0)	65(54.2)	2(1.7)	20(16.7)	9 (7.5)	3.6	Agreed
4	My social status affects my attitude towards cassava production (SOS)	18 (15.0)	39 (32.5)	17 (14.2)	35 (29.2)	11 (9.2)	3.2	Undecided
5	Previous experience with cassava production affects my attitude (PRE)	14 (11.7)	54 (45.0)	10 (8.3)	32 (26.7)	10 (8.3)	3.3	Undecided
6	I am motivated by another group who are better than mine in the community (MOT)	20 (16.7)	66 (55.0)	4 (3.3)	24(20.0)	6 (5.0)	3.6	Agreed
7	Being a member of an association influences my decision on cassava production (MEM)	15 (12.5)	35 (29.2)	18 (15.0)	46 (38.3)	6 (5.0)	3.1	Undecided

Source: Field survey 2013, grand mean = 3.1
Key for decision scale using the mean score: strongly agree - SA (≥ 4.5), agree – A (3.5 – 4.49), undecided – A (2.5 –3.49), disagreed – D (1.5 – 2.49), strongly disagreed - SD (1 –1.49)

Table 5. Distribution of respondents by attitude towards cassava production in the study area

S/N	Attitudinal statement	SA F (%)	A F (%)	U F (%)	D F (%)	SD F (%)	Mean score	Remarks
1	Age affects cassava production	3 (2.5)	76 (63.3)	3 (2.5)	30 (25.0)	8 (6.7)	3.3	Undecided
2	Male farmers are more productive than female farmers	2 (1.7)	66 (55.0)	6 (5.0)	39 (32.5)	7 (5.8)	3.1	Undecided
3	Agricultural extension agents have more impact on cassava production	30 (25.0)	63 (52.0)	15 (12.5)	8 (6.7)	4 (3.3)	3.9	Agreed
4	Cassava farmers have non-challant attitude about extension Agents	13 (10.8)	23 (19.2)	38 (31.7)	39 (32.5)	7 (5.8)	2.9	Undecided

S/N	Attitudinal statement	SA F (%)	A F (%)	U F (%)	D F (%)	SD F (%)	Mean score	Remarks
5	Cassava farmers generate more income than other farmers	7 (5.8)	53 (44.2)	39 (32.5)	10 (8.3)	11 (9.2)	2.7	Undecided
6	Added value to cassava will increase production	61 (50.8)	40 (33.4)	3 (2.5)	13 (10.8)	3 (2.5)	4.2	Agreed
7	Lack of Education cause decline in cassava production	19 (15.8)	38 (31.7)	17 (14.2)	43 (35.8)	3 (2.5)	3.2	Undecided
8	Farmers farm size affects cassava production	39 (2.5)	55 (45.8)	26 (21.7)	18 (15.0)	18 (15.0)	3.1	Undecided
9	Land acquisition does not affect cassava production	9 (7.5)	28 (23.3)	11 (9.2)	47 (39.2)	25 (20.8)	2.6	Undecided
10	Poor pricing and marketing affects cassava production	62 (51.7)	43 (35.8)	0 (0.0)	12 (10.0)	3 (2.5)	4.2	Undecided
11	Life has not been better since engagement in cassava	14 (11.7)	41(34.2)	3(2.5)	51(42.5)	11(9.1)	3.0	Undecided
12	Cassava production is too strenuous	7 (5.8)	73 (60.8)	12 (10.0)	13 (10.8)	15 (12.5)	2.6	Undecided
13	Cassava is a speed way to become rich	4 (3.3)	44 (36.7)	23 (19.2)	39 (32.5)	10 (8.3)	2.9	Undecided
14	Years loss in cassava is frustrating	38 (31.7)	36 (30.0)	10 (8.3)	24 (20.0)	12 (10.0)	2.5	Undecided
15	Government policies on cassava are deceitful	22 (18.4)	65 (54.2)	10 (8.3)	13 (10.8)	10 (8.3)	3.6	Undecided
16	Government policies on cassava supplement been enforced	55 (45.8)	47 (39.2)	5 (4.2)	7 (5.8)	6 (5.0)	4.2	Undecided
17	I will continue in cassava production	34 (28.3)	35 (29.3)	10 (8.3)	31 (25.8)	10 (8.3)	3.4	Undecided
18	Being a cooperative member is an advantage for cassava production	9 (7.5)	33 (27.5)	10 (8.3)	63 (52.5)	5 (4.2)	3.2	Undecided
19	I will quite cassava production if there is an alternative	9 (7.5)	33 (27.5)	10 (8.3)	63 (52.5)	5 (4.2)	3.2	Undecided
20	My living standard has improved through cassava production	35 (29.2)	50 (41.7)	3 (2.5)	25 (20.8)	7 (5.8)	3.6	Undecided

Source: Field survey, 2012, grand mean: 3.3, (N=120)

Key for decision scale using the mean score: strongly agree - SA (≥ 4.5), agree – A (3.5 – 4.49), undecided – A (2.5 –3.49), disagreed – U (1.5 – 2.49), strongly disagreed - NA (1 –1.49)

The result on Table 7 showed that, income of cassava farmers and their perception towards cassava added valued were significantly related, though, the strength of the relationship was weak. This shows that in the farmers' perception, the more value is added to cassava the more, the income the farmer earns.

Additional findings in the study, (Table 8), results showed that previous knowledge in cassava production affects farmers attitude towards cassava production has a significant relationship with cassava output at 0.05 level of significance. This confirms an adage that says that "Experience is the best teacher".

Table 6. Chi-square result of selected farmers' socio-economics characteristics versus cassava production

Relationship	X^2 cal	Df	p-value	Decision
Age versus cassava production	53.330	19	0.000*	Sig.
Sex versus cassava production	36.300	1	0.000*	Sig.
Marital Status versus cassava production	178.850	2	0.000*	Sig.
Education versus cassava production	102.000	4	0.000*	Sig.
Household size versus cassava production	59.883	7	0.000*	Sig.
Religion versus cassava production	1.034	1	0.309*	Not sig.

*Source: Field survey, 2012, * Significant at 0.05 level*

Table 7. Correlation of income and perception towards added value to cassava

Relationship	r-value	P-value	Df	N	Decision
Income vs. perception added value of cassava	0.280*	0.002	16	120	S

*Source: Field survey, 2012, * Significant at 0.05 level*

Table 8. Correlation matrix of perception of cassava farmers and cassava output

	COT	KNO	BST	ASP	SOS	PRE	MOT	MEM
COT	1							
KNO	0.045	1						
BST	-0.035	0.291*	1					
ASP	0.060	-0.452**	-0.227*	1				
SOS	0.037	0.046	0.074	0.142	1			
PRE	0.211*	0.211*	-0.259**	-0.271**	0.192*	1		
MOT	-0.119	-0.412**	-0.163	0.652**	0.129	0.444**	1	
MEM	0.137	-0.376**	0.004	0.267**	0.173	0.215*	0.245**	1

*Source: Field Survey 2012, * Correlation is significant at the 0.05 level (2-tailed), ** Correlation is significant at the 0.01 level (2-tailed)*

4. CONCLUSION

From the findings of the study, it was established that some of the socio economic characteristics like Age, Marital status and Household size affected the production of cassava in the study area, while religion did not. Also, Attitude and perception of farmers affected cassava production and respondents' involvement in value addition, is generally low in the study area. It was therefore recommended that farmers should be encouraged to get engaged in value addition to cassava as this has ability of increasing income generated from cassava production. Also, Farm mechanization should be encouraged through access to fund and organizing farmers into cooperatives so as to address the challenges of small size farm holdings.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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