



DETERMINANTS AND CHALLENGES OF CASSAVA PRODUCTION IN MANYU DIVISION, CAMEROON

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ABSTRACT

The study analysed the determinants and challenges faced by cassava farmers in Manyu, Cameroon. Primary data for the study was obtained from 400 cassava farmers with the use of a well-structured questionnaire. Data analysis shows that cassava production was dominated by females (95.5 %) in the study area and mean age (38.5). The probit results, revealed that marital status, social network, had training in cassava production, land tenure system, farmers' monthly revenue from cassava products, and experience in cassava production influence cassava production in Manyu division, at 10%, 10%, 5%, 1%, 1% and 10% level of significance respectfully. While the major challenges faced by cassava farmers were; absent of quality cassava cuttings (91.25%), lack of agrochemicals (51.25%), high cost of labour (78%), credit facilities (72.75%), high cost of farm inputs (64%), absent of extension services (64.25) and pests and diseases (63.25%) where the sum of percentage of strongly agree and agree is greater than the percentage sum of disagree and strongly disagree. Formulation of policies to attract investment in cassava production such as a tax exemption for private agricultural enterprises, easy access to land, increase the number of extension workers, training of farmers in cassava production and monitoring of cassava farms. The study recommended that projects in the cassava farming should target female and youths in large scale production and mechanisation.

Keywords: Cassava, Production, Challenges, Farmers, Cameroon

INTRODUCTION

Cassava (*Manihot esculenta* Crantz), originated from South America and it is a versatile crop that can thrive in poor soils conditions and it is relatively resilient to harsh climatic condition Petsakos *et al.* (2019). It has high carbohydrate content makes it an important source of energy and major staple food for closed to a billion around the world, particularly in Africa, Asia and Latin American (Food and Agricultural Organisation of the United Nations (FAO), 2023; Spencer and Ezedinma, 2017). Cassava also has diverse pharmacological activities, including anti-bacterial, anti-cancer, anti-diabetic, anti-diarrheal, anti-inflammatory and wound healing properties (Mohidin *et al.*, 2023). Cassava is grown for its storage roots and its importance is increasing in developing countries because of its diverse uses and its relatively high productivity where many other crops fail. It has referred as the "Rambo of food crops" because of its ability to thrive in warmer climates. This particular feature of cassava as it is a food security and income generation crop for farmers Tambi (2018).

Cassava is the fourth most important staple food in the world behind rice, wheat and maize forms part of the diet in the world (Adebayo, 2023). It is resistance to drought and depleted soils and the possibility of planting and harvesting cassava almost throughout the year, cassava is crucial to food security, especially in areas prone to drought and poor soils. However, it thrives best on rich, sandy-clay soils (FAO and IFAD, 2021). Cassava yields can be as high as 50-82 metric tons per hectare, making it the highest-producing starchy staple. Also, it can be produced on marginal soil when other crops cannot have an economically viable yield Nono *et al.* (2019). Compared to staples like wheat is 110×10^3 calories/ha/day, maize is 200×10^3 calories/ha/day, rice is 176×10^3 calories/ha/day, for sorghum is 114×10^3 calories/ha/day, and cassava 250×10^3 calories/ha/day is more efficient in generating carbohydrates (Balagopalan *et al.*, 2018). The leaves of cassava also serve as vegetable in at least 60 % of the countries in Sub Saharan Africa, providing an important source of vitamins (B1, B2 and C), carotenoids, minerals and proteins, with crude protein content ranging between 17-40%, depending on variety, stage of maturity and soil fertility Ravindran, (2021).



The world production of cassava in 2022 was estimated at 330.4 million metric tons; Africa was the world's largest cassava cultivation region, with total production of 208.6 million metric tons which represented than 60%. Nigeria remains the highest producer of cassava in the world in 2022 with about 60.8 million metric tons (FAOSTAT, 2023). Cameroon produced 6.2 million metric tons of cassava in 2022 (FAOSTAT, 2023). The increase in cassava production has not sufficiently ensured food security in the world. Cassava served as food to 500 million people in SSA (Cheteni *et al.*, 2020). Cassava production in Africa is currently characterised by a wide gap between potential and actual cassava yields per hectare and portrays an inability to embrace sustainable intensification of cassava production. The crop's potential yield where high yield, pest, and disease-resistant varieties have been grown coupled with good agronomy practices is six times the actual yield. Under optimal conditions, the potential cassava yields per hectare could be as high as 80 tons/ha (Clayton 2013). As such, its production is plagued by low yields caused, amongst other things, by farming on marginal lands, lack of access to finance, lack of proper crop management skills, dependence on rain-fed farming, and an underdeveloped value chain Adebayo and Silberberger (2020).

Studies and researchers continue to reflect on Africa's cassava yield situation. Philip *et al.* (2005) argue that continuing low yield can be attributed to low soil fertility and lack of interventions like applying organic and or inorganic fertilisers to boost yields. Also, critical factors like soil heat levels, humidity, soil erosion, poor soil nutrients, and poor cultural practices affect cassava yield negatively. Poor stem quality, pests and diseases are also obstacles to yield improvement Nono *et al.* (2019). Despite breakthroughs in cassava disease management and new high-yield cassava varieties development, yields per hectare have not increased substantially. The average cassava yield in Africa is 8.9 tons/ha, ranging between 5.7 and 10.5 tonnes from 1961 to 2019 (FAOSTAT, 2023).

There is the need for increased and enhanced cassava production, processing, packaging, leveraging, current technologies and innovations. Meanwhile, Cameroon's cassava production is expected to reach 10 million metric tons by 2030 (MINARD, 2022). Cassava is one of the most important food and cash crops grown in all the five agro-ecological zones in Cameroon (Temegne and Ngome, 2017). Although it is cultivated in all the ten regions of the country, it thrives well in the eight southern regions of the country. It is a major source of food security for most of rural people in Cameroon.

Cassava represents 60% of roots and tubers consumed in Cameroon, and are ranked as the second most consumed crop after Banana (FAO, 2020). This high consumption rate justifies an increase of 129% of its production between 2002 and 2015 (National Institute of Statistics (NIS), 2016). The major cassava producing regions are; Centre, East, South, South West (SW), North West (NW) and Littoral regions (Kegah *et al.*, 2019). However, cassava is eaten raw, boiled and 80% of the total cassava produced in the country is processed for gari, apku fufu, miondo, bobolo, flour, starch utilized as human food, the remaining percent is for other uses like starch making, livestock feed and export (Fonji *et al.*, 2017; Engwali and Temkeng, 2017). Cassava is consumed raw in the North and Far North regions, called 'cassava carrot'. Apart from provision of food, cassava has been an important source of family income and national economic growth in Cameroon Fonji *et al.* (2017).

The SW region occupied the fourth position in cassava production in Cameroon, behind Centre, South and East regions (NIS, 2022). Due to the socio-political crises in the NW and SW regions, it produced less than 500,000 metric tons of cassava in 2019. In 2022, 779507.8 metric tons of cassava was produced on 73158.75 hectares in the SW region (Ministry of Agriculture and Rural Development (MINARD), 2023). The sector in the SW region is a promising one with many businesses entwined from production, processing, packaging and marketing. The main cassava production divisions are Fako, Manyu and Meme divisions. Cassava and its derivatives are consumed daily. Cassava leaves and roots are the basic staple food in the division. Technological improvement (such as improved cassava varieties) is the most important factor in increasing agricultural productivity. In order to satisfy the forecasted increase in demand for cassava food and non-food products, and to harness the enormous potential offered by the crop, cassava production must be increased. The crop has great potential to contribute to development in the division and income-earning for smallholder farmers and related value chains. Therefore, it is critical to increase cassava production, as well as its quality attributes. Given the

fact that it can be processed to many products, it can significantly contribute to food and income if its production and related activities are encouraged and will surely translate in Cameroon and Manyu division in particular.

Cassava is one of the most important food and cash crops cultivated in all the five agro-ecological zones of Cameroon (Temegne and Ngome, 2017). Smallholder farmers constituted 75% of cassava farmers in the humid forest zone of Cameroon (Billa *et al.*, 2018). However, yields are very low and less than ten tons per hectare compared to potential yield of 30-40 tons per hectare of improved cassava varieties available in the country (MINARD, 2022). However, though combined efforts by the MINARD, the Institute of Agricultural Research for Development (IARD), the IITA and the National Program for the Development of Roots and Tubers (NPDRT) have not increase cassava production in the SW region and Manyu division in particular. Despite the economic potential and financial benefits of cassava, and its ability to generate income, and food, farmers are not so much investing in cassava production. However, the production of cassava has not grown in Manyu division. So, the question arising is that despite the importance and benefit of cassava, why is its production still low? What are the challenges faces by cassava farmers? Therefore, this research intends to investigate (1) the determinants of cassava production and (2) challenges faced by cassava farmers?

METHODOLOGY

This study was conducted in Manyu division, one of the six divisions in the South West region of Cameroon. It is located in the equatorial rain forest of Cameroon. Manyu division was created in 1917 by a Presidential decree as an administrative unit Mamfe is the headquarters and it is made up of four Sub-divisions; Mamfe Central, Eyumojock, Akwaya and Upper Banyang. It is bordered by the Federal Republic of Nigeria in the West, North West region in the North, Ndian division in the South and in the West by Kupe Manenguba as shown in Figure 1.



Figure 1: Map of Cameroon, map of South West region and map of Manyu Division
Source: Adapted from the Cameroon Administrative map of 1992

The map of Manyu division has an oval shape thrusts located between west and Central Africa. It extends from latitude 5° 76'67" North of the equator and longitude 9° 28' 33" East of the Greenwich Meridian. Manyu division lies approximately between longitudes 8°40' and 9°20' East of the Prime Meridian and latitudes 5°05' and 6°10' North of the equator (Ngwa, 1981). It covers a total surface area of approximately 9,565 km² and a population estimated at 231,981 inhabitants in 2021 (National



Institute of Statistics (NIS), 2022). The Manyu division falls within the Equatorial Climate Zone with two distinct seasons; the rainy and the dry seasons. The dry season runs from October/November to March and it is characterised by elevated temperatures (25°C-32°C). The climate is hot and humid and consists of a rainy and a dry season modified by the deviation of the monsoon and the relief of Mount Cameroon (Ndip *et al.*, 2018). The sources of the main tributaries are; Munaya, Badi and the Manyu Rivers (Ndip *et al.*, 2018). The rainy season begins from March/April and ends in September/October with an annual average rainfall ranging between 2000mm-4000mm, and peak periods in the months of July and August from the Besongabang weather Station, (2)

Sampling Techniques and Sample Size

A multi-stage sampling technique and exponential discriminative snowball was used for this study. The first stage involved a visit to the sub divisional delegates MINARD in the four (4) sub division of Manyu and collected a list of cassava associations, groups and cooperative in the municipality. The second stage involved a selection of five villages from each of the four sub divisions. The third stage involves the use of the exponential discriminative snowball sampling was later employed, where every selected subject gives several referrals, whereas only one subject gets recruited from each referral. Twenty (20) cassava farmers' households were selected from each village, making a total of 100 respondents per Sub division and a total sample size of 400 cassava farmers' households. The advantages of snowball sampling techniques is that it is an easier and faster way to identify and recruit participants hard-to-reach population, referrals make it simple and fast to select the targeted population really on dependable sources. The use of this sampling technique helped to elucidate the research analysis in the study area.

Data Collection

Data for this study was obtained from a primary source; it was collected from cassava farmers' households from August to September 2025 through the use of a structured questionnaire. This study collected data on the demographic characteristics such as: gender, age, education, marital status and household size. Data was collected through face to face interview and the questionnaires were anonymous.

Empirical Specification

The probit model was used to analyse the determinants of cassava production in Manyu division of Cameroon. Cassava production was captured as a binary and takes the value 1 if the farmer has been producing cassava for more than five years and zero if otherwise. The dependent variable of the model (cassava production) can be affected by other variables which are the drivers. Hence the statistical function of the independent variable can be presented in the functional expression as below.

$$CP = f(A, X, \epsilon) \quad \dots (1)$$

Where CP is cassava production (kg/ha), A is a vector of direct factors that affects cassava production, X stands for other (indirect) demographic factors that affects cassava production; labour (mandate), family size (in numbers), farm size (hectare), marital status, quantity of cassava cuttings planted (in numbers), education level (number of years spend in school), age of farmer (years), is other factors influencing cassava production (rainfall, crop management....) and $f()$ is the cassava production function. In order to measure the cassava production level, these different variables had to be aggregated into one measurement unit/index.

The ϵ is the error term that takes care of errors in the model. Factors such as marital status, social network, had training in cassava production, land tenure system, level of education, monthly revenue from cassava production and experience in cassava production were selected as the drivers of cassava production. The study results will be based on these key primary independent variables for the purpose of this research. The impact on the independent variables on CP may be analysed by transforming the functional expression into an econometric model. However, it is important to note that cassava production was captured as a binary and this appeal to the use of a limited probability dependent model. The probit model was used for the interpretation of the marginal effects. The probability equation for this structural equation is presented in equation two (2).

$$P(CP_i = 1 | X) = V(\alpha_0 + \alpha_1 A_i + \alpha_2 X_i) \quad \dots(2)$$



CP, A, X and ε have been earlier defined and α is the coefficient to be estimated. Where α_0 is the coefficient of the constant term, α_1 measures the drivers of cassava production used in the study and α_2 measures other demographic factors of cassava production in Manyu division, in the cassava sub sector. The marginal effects of the coefficients can be deduced from the first derivative of equation three (3) as follows:

$$\frac{d(CP)}{dA} = \alpha_1 + \alpha_2 X_i \quad \dots(3)$$

Where α_1 is the effect of the drivers of CP and $\alpha_2 X_i$ expresses the effects of the other demographic variables of CP.

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

The purpose of collecting data was due to the fact that, the research has proved that age, gender, marital status, household size and education had influenced cassava production. The results in Table 1 revealed that more than 95.5 of cassava farmers were female. This can be explained as a result of the culture of farmers in Manyu division where most men concentrate on the cultivation of cash crops (cocoa, oil palms and coffee) and female in food crops (cassava, maize, egusi, ground nut, yam and cocoyams). This result confirms the study of Bethel *et al.* (2025), Takam *et al.* (2023), Mbi (2021) and Njukwe *et al.* (2014), where majority of the cassava famers were female. This finding however agrees with Zubairu and Maurice (2014) and Hadebe and Mpofo (2013) who found that women are mostly involved in food crop production which ensures food security.

Table 6: Socioeconomic Characteristics of Cassava Farmers Respondents

Characteristics	Category	Frequency	Percentage
Gender	Male	18	4.5
	Female	382	95.5
Age	20-29 Years	30	7.5
	30-39 Years	98	24.5
	40-49 Years	154	38.5
	>=50	118	29.5
	Education	Primary	144
	Secondary	198	49.5
	Vocational Training	10	2.5
	Tertiary	48	12
Marital status	Single	90	22.5
	Married	310	77.5
Household size	< 5 Persons	152	38
	5 – 10 Persons	238	59.5
	>10 persons	10	2.5
Do you produce cassava	Yes	400	100
Experience in Cassava Cultivation	5-9 Years	32	8
	10-14 Years	140	35
	>=15 Years	228	57
Use of Fertilizer	No	390	97.5
	Yes	10	2.5
Nature of Land Tenure System	Owner	299	74.8
	Rent	101	25.2
Farm Size	<1 Hectare	362	90.5
	1-2 Hectares	38	9.5
Had Training on Cassava Cultivation	No	276	69
	Yes	124	31

Source: Field Survey, 2025



From the findings in Table 1, 38.5% of cassava farmers were between 40-50 years of age respectfully. Farmers at this age gap are active in agricultural production in Manyu division. The result is in line with the studies of Mbi (2021). This outcome is also in agreement with the work of Enimu *et al.* (2015) that majority of the farmers were in their productive age; as such, they could easily be engaged in field crop. Furthermore, 49.5% of the cassava farmers had completed secondary school. This finding corroborates with the studies of Mbarga *et al.* (2024) and Shehu and Mohammed (2017). Sofoluwe *et al.* (2011) confirmed that education influences people's perception and adoption of innovations. The result revealed that majority (77.5%) were married as married farmers own more land than single farmers in the area. This result coincides with that of Dogba (2020). According to Anjikwi *et al.* (2020), marriage brings stability to activity and could lead to higher productivity. Married farmers may also benefit from their partners' resources and network to improve their household food, income and welfare diversification strategy.

In addition, more than half (59.5%) of the respondents had an average household size of between 5-10 persons due to the fact that cassava production is labour intensive. This finding is similar to that of Mbi (2021) who state that majority of the household size of cassava farmers' had average persons per household. The findings revealed that all the farmers 100% were cassava producers and 57% of farmers had between 10-15 years in cassava production, confirming the study of Itam *et al.* (2014) and Nwaru (2004). This may be due to the fact that cassava is the main staple food of the people in Manyu division. This implies that farmers will experience increased output given the number of years they have spent farming, they are expected to have gained enough knowledge. Nwaru (2004), noted that farmers sometimes count more on their experiences than educational attainment in order to increase their productivity. From the findings, 74.8% of cassava farmers were owners of their farm land. 90.5% of the farm sizes of farmers were less than one hectare. This revealed that most of the farmers were smallholder farming, which is typical in cassava production systems in Cameroon. This finding corresponds with Esheya (2019), who observed that most cassava farmers operate on relatively small plots of land, possibly due to land constraints or resource limitations. Most of the farmers had not been trained in cassava cultivation with 69% in Manyu division.

Descriptive Statistics of Variables Used in Regressing Driver of Cassava Production

Results of descriptive statistics in Table 2 revealed that 77.5% of the farmers were married. Most married farmers are involved in cassava production since married household have more mouths to feed than a single household. This finding supports the assertions by Angba and Iton (2020) and Enimu *et al.* (2016) that married individuals dominate cassava farming. This suggests that married farmers are more likely to have access to family labour, which can significantly reduce dependence on hired labour and lower production costs. As far as social network is concerned, 45.5% of the farmers are members of an association. Also, the finding shows that 31% of farmer had received trained on cassava production. The training was done by extension workers or non-governmental organisations (NGOs) for free. The number of people trained was small. Furthermore, farmer's monthly income from cassava products had a mean of 1.665. The finding could be as a result that the income from cassava production was high and it was the main determinant of cassava production in Manyu division.



Table 2: Descriptive Statistics of Variables Used in Regressing for Cassava Production

Variable	Obs	Mean	SD	Min	Max	Alpha
Marital Status (1= married, 0 otherwise)	400	0.775	0.418	0	1	0.6899
Social Network (1= member of association, 0 otherwise)	400	0.455	0.498	0	1	0.8603
Had Training in Cassava Production (1= Yes, 0 otherwise)	400	0.31	0.463	0	1	0.6854
Farmer's Monthly income from Cassava Products	400	1.665	0.603	50000	100000	0.7902
Land tenure system (1=owner, 0 otherwise)	400	0.75	0.433	0	1	0.6541
Experience in Cassava production (>=15 years)	400	57	0.495	0	1	0.8159
Level of Education (1= Primary, 0 otherwise)	400	0.36	0.4806	0	1	0.6950
Experience in Cassava production (10-14 years)	400	0.35	0.477	0	1	0.7704
Experience in Cassava production (5-9 years)	400	0.08	0.485	0	1	0.7774

Source: Field Survey, 2025

Table 2 shows 75% of the farm lands were owned by farmers. Primary level of education has an average value of 0.36. This finding is consistent with Aboajah *et al.* (2018), who emphasized that education facilitates access to agricultural innovations. Farmers who had between 5-10 years of experience in cassava production had a mean value of 0.08, while those between 10-15 years of experience and above 15 years of experience in cassava production had an average of 0.35 and 0.57 respectively. This is because the active groups of the population are those between 5-9 years and between 10-14 years of experience in Manyu division which is in line with Oshioriamhe *et al.* (2025) and Aboajah *et al.* (2018). This implies that majority of the farmers had more than 15 year experience in cassava production which constituted 57% of cassava farmers in Manyu division. According to Aboajah *et al.* (2018), this depth of experience positively influences the adoption of improved practices and technologies. The variables were also tested and the results of the reliability indicated that they were reliable with all the results of Cobh Alpha greater than 0.6. The computed alpha values were between 0.6854 and 0.8603 indicated a questionable and good internal consistency among the items respectfully. Despite the moderate level of internal consistency, the values are within the acceptable range for exploratory research.

Determinants of Cassava Production in Manyu Division, Cameroon

Regression results in Table 3 revealed if the number of married people increases by one unit, it has a probability to increase cassava production by 0.5989 units and it is statistically significant at 10% level. The positive sign implies that as the population of married people increased, there is a probability that more farmers will be involved in cassava cultivation. It is more likely that married people are involved in cassava production that single farmers. As concerns social network, it is positively associated to cassava production at 10% level of significant and a marginal effect of 0.4312 units. Regression results also revealed that training in cassava production had a positive and statistically significant on cassava production at 5% level, with a probability of 0.2372 units. In relation to land tenure and farmer's monthly income from cassava production was statistically significant at 1% level, with a positive probability of 0.8061 and 0.7605 respectively. The coefficient for experience in cassava production between 5-10 years was 0.4859 and statistically significant at 10%, thus revealing that the result was 90% correct and positive. This implies that farmers with more years of experience are more likely to augment cassava production by 0.4859 units. The finding confirms the works of authors such as Mbarga *et al.* (2024), Adebisi *et al.* (2015), Afolami *et al.* (2015) and Bakut (2013). The result is consistent with the findings of Bakut (2013) in his study of in Bwari and Kuje area of Abuja who reported that the adoption of recommended cassava production practices resulted in an increase in total production by improving yield and income of farmers.

Table 3: Determinants of Cassava Production in Manyu Division, Cameroon

Variable	Estimation Method: Probit Technique			
	Coef.	Std Err.	Z	P> z
<i>Cassava Production</i>				
Marital Status (1= married, 0 otherwise)	0.5989*	0.3608	1.66	0.110
Social Network (1= member of association, 0 otherwise)	0.4312*	0.2471	1.74	0.081
Had Training in Cassava Production (1= Yes, 0 otherwise)	0.6014**	0.2372	2.54	0.011
Land tenure system (1=owner, 0 otherwise)	0.8061***	0.2495	3.23	0.001
Experience in Cassava production (>=15 years)	-4.9806	0.2049	-0.02	0.981
Level of Education (1= Primary, 0 otherwise)	-0.3358	0.2343	-1.43	0.152
Farmer's Monthly Income from Cassava Products	0.7605***	0.2326	3.27	0.001
Experience in Cassava production (10-14years)	-4.5449	204.975	-0.02	0.982
Experience in Cassava production (5-9 years)	0.4859*	0.26547	1.83	0.067
Constant	8.0977	204.9768	0.04	0.968
Pseudo R²		0.2235		
LR chi²(9)/ Prob > chi2		45.35 [0.0000]		
Number of observation		400		

Source: Author, N/B: Notes: ***, ** and * indicate 1%, 5% and 10% levels of significance, estimates of T statistics

Challenges of Cassava Production Farmers in Manyu Division

The proportionate model was used to estimate the constraints encountered by farmers in cassava production in Manyu division, Cameroon as presented in Table 4. The absent of quality cassava cuttings was the major challenge faced by cassava farmers households with a 91.25% was the main determinant of cassava productivity since most of the cassava farmers do not use soil enrichment inputs or agrochemicals in their cassava farms. They relied on quantity of cassava cuttings planted for increased farm outputs.

Table 4: Challenges of Cassava Production in Manyu Division, Cameroon

Challenge	SA		A		D		SD		Decision (%)
	F	%	F	%	F	%	F	%	
Absent of quality cassava cuttings	102	25.5	263	65.75	26	6.5	9	2.25	SA+A>D+SD
Lack of agro-chemical	13	3.25	192	48	138	34.5	57	14.25	SA+A>D+SD
High cost of labour	94	23.5	218	54.5	56	14	32	8	SA+A>D+SD
Credit facilities	202	50.5	89	22.25	72	18	37	9.25	SA+A>D+SD
High cost of farm inputs	160	40	96	24	91	22.75	53	13.25	SA+A>D+SD
Climate change	36	9	151	37.75	171	42.75	42	10.5	SA+A<D+SD
Absent of extension services	80	20	137	34.25	105	26.25	78	19.5	SA+A>D+SD
Pests and diseases	34	8.5	219	54.75	61	15.25	86	21.5	SA+A>D+SD
Transportation	88	22	133	33.25	138	34.5	41	10.25	SA+A>D+SD

Source: Computed by Author. **N/B:** SA= Strongly Agree, A= agree, D= Disagree, SD= Strongly Disagree, F = Frequency, % = Percentage.

The results in Table 4 also revealed that lack of agrochemicals was a challenge to cassava farmers in the study area of 51.25%. It was an average constrain since most farmers in Manyu division do not use agrochemical in their cassava farms. High cost of labour was a constraint of 78%. This implies that it increases farm overall cost of farmer operations. Credit facilities was a major constraint at 72.75% to cassava production in Manyu division due to limited access to credit, lack collateral, high



interest rates and absent of financial services in rural areas, The high cost of cassava farm inputs (64%), access to extension (64.25%) and pests and diseases(63.25%) were the challenges faced by cassava farmers households. Similarly, effects of climate change revealed that it was not a major challenge to farmer in the study area since $SA+A<D+SD$ ($46.75<53.25$). This may be due to the fact that cassava is a crop which adapts to different climatic conditions since farmers in Manyu division relies on rain fed agriculture.

CONCLUSION AND RECOMMENDATION

The probit results revealed that marital status, social network, had training in cassava production, tenure system, farmers' monthly revenue from cassava products, and experience in cassava production increased cassava production in Manyu division, Cameroon. While the key constraints of cassava production observed in Manyu division include; absent of quality cassava cuttings, lack of agrochemicals, high cost of labour, credit facilities, high cost of farm inputs, absent of extension services and pests and diseases. Male farmers in the study area should be encouraged to invest in cassava farming by providing cassava cuttings, access to land, credit, training in cassava production and technology and used of involved varies. Farmers should form associations to have a voice, create visibility and enjoy benefits from the state, development partners and agencies to increase cassava production in Cameroon and Manyu division in particular. Moreover, projects in the cassava farming should target female and youths in large scale production and mechanisation. Furthermore, the creation of financial institutions in the Sub division of Manyu to facilitate access to loans at low interest rate to boost agricultural production and cassava production in the study area. Policies projects in the agricultural sector should use the bottom up approach and respect planting season in the study area. We therefore, encourage other agribusiness researchers especially in Cameroon to orientate their research effort towards other areas of agribusiness such as: profitability of cassava species cultivated by farmers, livelihood and food security of farmer's households, cassava value chain and economic welfare marketing and profitability of cassava farming using secondary data.

REFERENCES

- Aboajah, F. N., Onjewu, S. S., Chia, J. I., and Okeme, S. (2018). Socio-economic Determinants of Cassava Production in Benue State, Nigeria. *International Journal of Environment, Agriculture and Biotechnology*, *3*(2): 550-557.
- Adebayo, W. G. (2023). Cassava production in Africa: A panel analysis of the drivers and trends. *Journal of Heliyon*, *9*: 199-209.
- Adebayo, W. S., and M. Silberberger, M. (2020). Poverty reduction in Nigeria: can improving and the cassava value chain help? In: *The Palgrave Handbook of Agricultural and Rural Development in Africa* Palgrave Macmillan, Geneva
- Adebisi, G., Owolade, E., and Jatto, B. (2015). Factors influencing rural youth's involvement in Cassava production in Oyo State. *Journal of Agricultural Research and Development*, *5*(3): 128-136.
- Afolami, C., Obayelu, A., and Vaughan, I. (2015). Conducted a research on Welfare impact of adoption of improved cassava varieties by rural households in South Western Nigeria. *Journal of Agricultural and Food Economics*, Retrieved March 18, 2024, from Doi 10.1186/s40100-015-0037-2
- Angba, C. W., and Iton, O. V. (2020). Analysis of Cassava Production in Akpabuyo Local Government Area: An Econometric Investigation Using Farm-Level Data. *Global Journal of Agricultural Research*, *8*(1): 1-18.
- Anjikwi, Y., Bashir, A. B., and Adamu, A. G. (2020) Analysis of ginger markets in Hawul Local Government area Borno State, Nigeria. *Journal of Economics and Allied Research*, *4*(2): 126-140.
- Bakut, P. M. (2013). Factors influencing adoption of Recommended Cassava Production Practices by farmers in Bzari and Kuje Area councils, Abuja, Federal Capital territory. M.Sc Thesis



- submitted to the Department of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria, Nigeria. 57.
- Balagopalan, C., Padmaja, G., Nanda, S. K., and Moorthy, S. N. (2018). Cassava in food, feed, and Industry (1st ed). CRC Press.
- Bethel, O., Anyanwu, T., and Robinson, A. (2025). Determinants of cassava production in Kolokuma/Opokuma Local Government Area, Bayelsa State, Nigeria. *FUDMA Journal of Sciences*, **9**(1): 318-322.
- Billa, S. F., Angwafo, T. E., and Ngome, A. F. (2018). Environmental and socio-economic feasibility of biochar application for cassava production in the bimodal rainforest zone of Cameroon. *International Journal of Rural Development, Environmental Research and Health*, **2**(1): 1-9.
- Cheteni, P., Khamfula, Y., and Mah, G. (2020). Exploring Food Security and Household Dietary Diversity in the Eastern Cape Province, South Africa. *Journal of Sustainability*, **12**: 1851. Retrieved May 19, 2024, from Doi:10.3390/su12051851.
- Clayton, C. (2013). "Foreward", in Save And Grow: Cassava: a Guide to Sustainable Production Intensification, Food and Agriculture Organization of the United Nations, Rome, 129.
- Dogba, K. B. (2020). Determinants of the economic efficiency of cassava production in Bomi and Nimba counties in Liberia. A thesis submitted in partial fulfilment of the requirements for the award of the degree of Master of Science in Agricultural and Applied Economics. Department of Agricultural Economics Faculty of Agriculture, University of Nairobi.
- Engwali, F. D., and Temkeng, D. S. (2017). Potentials for cassava processing in the Littorial region of Cameroon. *International Journal of Agricultural Economics*, **2**(4): 122-128.
- Enimu, S., Edet, G. O., and Ofem, U. I. (2016). Profitability Analysis of Cassava Production in Cross River State, Nigeria. *International Journal of Human Resources and Social Science*, **3**(8): 210-224.
- Enimu, S., Igiri, J., and Uduma I. S. (2015). An assessment of the performance of community banks in financing resource poor farmers in Delta State. *International Research Journal of Marketing and Economics*, **2**(10): 64-75.
- Enow, R. T., and Ojuku, T. (2024). Traffic and mobility challenges in Mamfe-Manyu division, South West Region of Cameroon. *Scholars International Journal of Law, Crime and Justice*, **7**(4): 157-166. Retrieved April 11, 2024, from Doi: 10.36348/sijlcj.2024.v07i04.004
- Esheya, S. E. (2019). Economics of cassava production in Ohaukwu local government area of Ebonyi state, Nigeria. *Akwa-Ibom State University Journal of Agricultural Economics, Extension and Rural Development*, **2**(2): 92-98.
- FAOSTAT (2023). Food and Agricultural Organization of the United Nations, 2023.
- Fonji, F. T., Temegne, C. N., and Ngome, F. A. (2017). Quantitative analysis of cassava products and their impacts on the livelihood of value chain actors: case of the Centre Region of Cameroon. *Annual Research and Review in Biology*, **15**(6): 1-14.
- Food and Agricultural Organisation of the United Nations (2023). Diagnostic Study on the Reduction of Post-harvest Losses for Three Crops: Cassava, Tomato and Potato, Food and Agriculture Organisation, Rome, 2018.
- Food and Agriculture Organization of the United Nations (2022). Anticipatory action helps flood-affected communities in Cameroon's Far North. Retrieved July 11, 2024, from <http://www.fao.org/faostories/article/en/c/1640172>
- Food and Agriculture Organization of the United Nations Statistical Database (2023). FAOSTAT. Retrieved June 13, 2024, from <http://www.fao.org/faostat/en/#data/>
- Food and Agriculture Organization of the United Nations, and International Fund for Agricultural Development. (2021). The role of cassava in food systems and rural transformation.
- Hadebe, L. B., and Mpofo, J. (2013). Empowering Women through Improved Food Security in Urban Centers: A Gender Survey in Bulawayo Urban Agriculture. *African Journal of Agricultural Economics*, **1**(1): 18-32.
- International Institute of Tropical Agriculture (2021). Cassava. Retrieved June 13, 2024, from: <https://www.iita.org/cropsnew/cassava/>.



- Itam, K. O., Ajah, A. E., and Agbachom, E. E. (2014). Analysis of Determinants of Cassava Production and Profitability in Akpabuyo Local Government Area of Cross River State, Nigeria, *International Business Research*, **7**(12): 128-135. Retrieved May 11, 2025, from doi:10.5539/ibr.v7n12p128
- Kegah, F. N., Takam-Tchuente, Ndjouenkeu, R., Kleih, U., Fliedel, G., Lora Forsythe, L. (2019). State of Knowledge on Gari in Cameroon. Food Science and Market. Ngaoundere, Cameroon. RTBfoods State of Knowledge Report, 89.
- Mbarga, E. J., Molua, E. L, Djomo, C., and Kemeni, K. (2024). Structure and performance of cassava markets: challenges of food security and connecting small farmers to markets in Cameroon. *Frontiers in Sustainable Food Systems*, **8**: 1352565. Retrieved July 13, 2024 Doi: 10.3389/fsufs.2024.13453565
- Mbi, V. N. (2021). Research and development on agricultural productivity. Case of Manyu division. End of study thesis as fulfilment for the award of a master's degree in environmental and rural development economics in the University of Yaounde II. *International Journal of Innovative Science and Research Technology*, **6**(1): 1534-1595.
- Ministry of Agriculture and Rural Development (2022). Statistical Yearbook of the Ministry of Agriculture and Rural Development.
- Mohidin, S. N., Moshawih, S., Hermansyah, A., Asmuni, I. M., Shafqat, N., and Ming, C. L. (2023). Cassava (*Manihot esculenta* Crantz): A Systematic Review for the Pharmacological Activities, Traditional Uses, Nutritional Values, and Phytochemistry. *Journal of Evidence-Based Integrative Medicine*, **(28)**: 1-26.
- Ndip, A. E., Agyingyi, C. M., Nton, M. E., and Oladunjoye, M. A. (2018). Review of the Geology of Mamfe Sedimentary Basin, South West Cameroon, Central Africa. *Journal of Oil, Gas and Petrochemical Sciences*, **1**(35): 40. Retrieved June 13, 2024, from <https://doi.org/10.30881/jogps.00008>
- Njukwe, E., Mahungu, N., Chikoye, D., and Ano, A. (2014). Cassava sector development in Cameroon: Status, constraints and opportunities for research and development. IITA Working Paper Series
- Nono. C. T., Ngome A. F. and Ngalle, E. (2019). Appropriate fertilizer (NPK) rates for cassava (*Manihot esculenta* Crantz) production in the humid forest agro ecological zone of Cameroon. *African Journal of Agricultural Research*, **14**(35): 2017-2022. Retrieved June 23, 2024, from Doi: 10.5897/AJAR2019.14186
- Nwaru, J. C. (2004). *Rural Credit Market and Arable Crop Production in Imo State of Nigeria*. Unpublished Ph.D Dissertation, University of Agriculture, Umudike, Nigeria.
- Oshioriamhe, O. I., Aiyedun, E. A., and Ebukiba, E. S. (2025). Determinants of Cassava Production among Smallholder Farmers in Edo State, Nigeria, *Global Academic Journal of Agriculture and Bio sciences* **7**(3): 36-46. Retrieved July 11, 2025, from DOI: <https://doi.org/10.36348/gajab.2025.v07i03.001>
- Petsakos, A., Prager, S. D., Gonzalez, C. E., Chibwana, A., Sulser, T. B., Gbegbelegbe, S., Kikulwe, E. M., and Hareau, G. (2019). Understanding the consequences of changes in the production frontiers for roots, tubers and bananas. *Global Food Security*, **20**: 180-188.
- Philip, T., Taylor, D., Sanni, L., Okechukwu, R., Ezedinma, C., Akoroda, M., Lemchi, J., Ilona, P., Ogbe, F., Okoro, E., and Dixon, A (2005). The Nigerian Cassava Industry Statistical Handbook, International Institute of Tropical Agriculture (IITA), Ibadan.
- Ravindran, V. (2021). Preparation of cassava leaf products and their use as animal feeds. Retrieved June 11, 2024, from <http://www.fao.org/livestock/agap/frg/AHPP95/95-111.pdf>
- Shehu, A. S., and Mohammed, A. S. (2017). Economic analysis of tomato marketing In Ilorin Metropolis, Kwara State, *Nigeria Journal of Agricultural Sciences*, **62** (2): 179-191.
- Sofoluwe, N. A., Tijani, A. A., and Baruwa, O. I. (2011) Farmers Perception and Adaptation to Climate Change in Osun State, Nigeria. *African Journal of Agricultural Research*, **6**(20): 4789-4794.
- Spencer, D. S., and Ezedinma, C. (2017). Cassava cultivation in Sub Saharan Africa. Cambridge: Burleigh Dodds Science Publishing Limited, 123-148. Retrieved June 17, 2024, from Doi:10.19103/as.2016.0014.06



- Takam, H. N., Fongang, G. H., Mbwentchou, D. C., Mathe, S., and Teeken, B. (2023). Varietal diversity as a lever for cassava variety development: Exploring varietal complementarities in Cameroon. *Journal of Science Food and Agriculture*, **104**(8): 4808-4817. Retrieved May15, 2025, from <https://doi.org/10.1002/jsfa.12899>
- Tambi, D. M. (2018). Cassava production and extension service delivery in Cameroon. *Journal of Agricultural Science and Study*, **1**(1): 104-112.
- Temegne N. C., Mouafor, B. I., and Ngome, A. F. (2016). Agro-morphological characterization of cassava (*Manihot esculenta Crantz*) collected in the humid forest and Guinea savannah agro-ecological zones of Cameroon. *Greener Journal of Agricultural Science*, **6**(7): 209-225.
- Zubairu, E. A., and Maurice, D. C. (2014). Analysis of Household Food Insecurity among Food Crop Farmers in Ardo-Kola Local Government Area of Taraba State, Nigeria. *Taraba Journal of Agricultural Research*, **2**(2): 20-25.