

## DETERMINANTS OF MARKETERS' INVOLVEMENT IN CASSAVA VALUE ADDITION IN OYO STATE, NIGERIA: A GENDER PERSPECTIVE

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### ABSTRACT

This study examined the determinants of marketers' in cassava value addition in Oyo State of Nigeria. This study highlights key factors influencing cassava value addition among marketers in Oyo State, Nigeria, offering insights for inclusive growth in the sector. Data were collected from a sample of 89 marketers involved in cassava value addition across four agricultural zones using a cross-sectional design and data from interviews were analyzed using descriptive statistics, Weighted Average Index (WAI), and Factor Analysis. Findings revealed age population of marketers with a mean age of 44.5 years for marketers. Few marketers (32%) were engaged in farming as their primary occupation. Majority of marketers (78%) were married, with a significant gender imbalance women dominated cassava marketing. Most marketers had secondary and higher education of (46%) and (11%) respectively. The study revealed marketers face severe constraints especially in rural areas. Despite these challenges, cassava value addition remains a key source of income for rural households, significantly contributing to food security and employment opportunities. Overall, factor analysis reveals that, six global factors with differentiated components explained most of the variance in marketers' involvement in cassava value addition. Given the results of the study, a holistic approach tailored towards addressing these through improved infrastructure, credit access, training, and market linkages could unlock cassava's full potential to boost food security, economic growth, and inclusive development.

**Keywords:** Gender, Involvement, Value Addition, Marketers, Factor

### INTRODUCTION

Cassava (*Manihot esculenta*) is a crucial food crop in Nigeria, highly valued for its adaptability to different soils and climates, making it a dietary staple for many households (Onyediak and Adiele, 2022). Nigeria, the world's largest cassava producer, depends on this crop for food security and economic stability, especially among smallholder farmers (Otekunrin and Sawicka, 2019; Ikuemonisan *et al.*, 2020). Cassava provides essential carbohydrates and supports rural economies by creating jobs in marketing (Darko-Koomson, Aidoo and Abdoulaye, 2020). Its versatility allows it to be marketed in form of flour, starch, and garri, contributing to dietary and income diversification (Shittu *et al.*, 2016; Raufu *et al.*, 2018). Africa produces 57% of global cassava, with Nigerian production increasing from 42.5 million tons in 2010 to 66 million tons in 2022 (National Agricultural Extension Research Liaison Services (NAERILS), 2022). Oyo State, a leading producer, saw production rise from 1.62 million tons in 2010 to 1.88 million tons in 2022 (NAERILS, 2022). Cassava plays a significant role in Nigeria's economy, food security, and rural development.

As a staple crop, it provides essential calories and carbohydrates for millions, adapting well to diverse environments (Raufu *et al.*, 2018; Coulibaly *et al.*, 2014). Economically, cassava drives income for smallholder farmers and supports rural enterprises (Awotide *et al.*, 2019; Otekunrin and Sawicka, 2019). However, challenges like post-harvest losses persist. Value addition has emerged as a strategy to improve cassava's market competitiveness and economic benefits (Abass *et al.*, 2013; Darko-Koomson *et al.*, 2020). Value addition has expanded cassava's economic impact, with products ranging from food items like garri and fufu to industrial applications. This diversification enhances the crop's economic viability, with value-added cassava products raising farmers' income by up to 300%, where women play a critical role in this growth (Okebiorun, 2024).

However, challenges like infrastructure deficits, financial constraints, and limited market information hinder the value chain (Lutta *et al.*, 2024; Ikenga *et al.*, 2024). Structural issues persist in marketing, with intermediaries capturing higher profits than producers, impacting sustainable development (Ali, 2023).

Challenges like high transaction costs further weaken market efficiency, underscoring the need for a streamlined marketing system to enhance profitability and stability in Nigeria's cassava sector (Eze *et al.*, 2023). Despite these challenges, the study underscores gender-based challenges faced by marketers, such as funds and information, which policymakers must address to empower marginalized groups (Apata, 2019). Findings also show that value-added cassava products can increase farmer incomes by 150-300%, underscoring the economic benefits of investments in processing infrastructure, market linkages, and financial access (Okebiorun, 2024). Several literatures both local and international revealed some findings, Abass, 2006; Babatunde *et al.*, 2022 noted that, value addition in cassava marketing has significantly expanded both local and international market economic potential of this staple crop, opening opportunities across diverse products and industries in Nigeria. Cassava starch, an essential product with applications across industries, adds further value through refined extraction methods (Babatunde *et al.*, 2022). Traditional foods like garri and cassava chips diversify the market, serving human and animal consumption needs (Uchechukwu-Agua *et al.*, 2015). Industrial uses include cassava ethanol for bio-fuel and alcoholic beverages, drawing investment into the cassava sector (Raufu *et al.*, 2018; Otunba-Payne, 2020). Biofortified cassava varieties address nutritional deficiencies by increasing vitamin A and iron, benefiting communities that rely on cassava as a dietary staple (Oparinde *et al.*, 2016; Kolapo and Kolapo, 2021). Additionally, cassava-based composite products and snack foods cater to urban and modern consumer demands, creating new markets (Ayodeji *et al.*, 2017; Eke-Ejiofor and Allen, 2019).

Theoretical Framework of the study was based on the theory of Planned Behavior (TPB) and Social Capital Theory provides valuable insights into cassava marketers' engagement in value addition activities. *Theory of Planning Behaviour* explains marketers' behavioral intentions through attitudes, subjective norms, and perceived control. Attitudes, shaped by perceived economic benefits and risks, significantly influence marketers' investment

in processing technologies (Ladele and Aderinto, 2014). Perceived behavioral control marketers' confidence in their abilities, resources, and market knowledge emerges as a critical determinant of involvement, sometimes more impactful than actual control (Taiwo and Associates, 2024).

Social Capital Theory complements TPB by highlighting how social networks facilitate resource access, information sharing, and collaboration among cassava marketers. Structural social capital, or network connections, improves access to technical knowledge and financial resources, supporting innovation (Ayodeji *et al.*, 2017). The Relational social capital, emphasizing trust and cooperation, enables risk-sharing and problem-solving, which are essential for sustainable value addition efforts (Jayne *et al.*, 2021). Together, these theories underscore the role of both individual perceptions and social relationships in shaping cassava value addition practices.

## **MATERIALS AND METHODS**

### **Study area**

The study was conducted in Oyo State, located in southwestern Nigeria, with an area of 27,249 km<sup>2</sup>. It is bounded by Ogun State to the south, Kwara State to the north, and Osun State to the east, with a projected population of 7.98 million in 2022. Agriculture is the main economic activity, with cassava being a significant crop. Oyo State's tropical climate, with distinct wet and dry seasons, supports the cultivation of cassava, yam, and other crops. The Oyo State Agricultural Development Programme (OYSADEP) aims to enhance agricultural productivity and improve farmers' livelihoods. The state is predominantly inhabited by the Yoruba ethnic group, with a strong cultural identity rooted in kinship ties (Ministry of Agriculture and Rural Development, 2017).

### **Sampling procedure and sample size**

A four-stage sampling procedure was used to select the respondents. The first stage involved a purposive selection of two Local Government Areas (LGAs) each from the four Agricultural Development Programme (ADP) zones in the State, based on the predominance of cassava farming and processing activities. In the second stage, a simple random sampling method was

used to select two cells each across the 8 LGAs, making a total of 16 cells. Then, at the third stage, 30% of the villages in each cell was randomly selected, while at the fourth stage, 50% of the marketers involving in cassava value addition, consisting of the 25% male and 25% female from each group of the marketers involving in cassava value addition were also be proportionately. Lastly, the same technique was used to select 45 men and 45 women marketers across the selected villages, culminating in a sample of 90 actors who are marketers. This approach ensured representative coverage of the four agricultural zones and marketers across Oyo States, who are important marketers in value addition in South-west Nigeria. Based on the study objectives, important information were elicited from the selected sample size with the use of a structured questionnaire, but responses from 89 respondents were found useful for the final analyses.

#### **Methods of data analyses**

The study applied descriptive statistics (frequency distribution, percentages, and mean values) to explore the dataset. Also, Weighted Average Index (WAI) was also used to rank the severity of the constraints facing actors' involvement in cassava value addition. Furthermore, inferential statistics such as Factor analysis was used to examine the factors influencing gender involvement in cassava value addition in the study area.

### **RESULTS AND DISCUSSION**

The socio-economic characteristics of marketers engaged in cassava value addition in Oyo State, Nigeria, reveal insights into the demographic, educational, and occupational landscape of this sector, providing implications for targeted policies and interventions.

The data shows that a significant proportion of cassava value addition marketers are in the 41-50 age range (49.4%), with a mean age of 44.5 years. This finding is consistent with the study by Azeez *et al.* (2021) in Oyo State. This age profile suggests that most participants are middle-aged, potentially leveraging years of experience and established business networks. However, the limited representation of marketers below 30 years underscores the need

for youth-centered policies to attract younger participants, thereby ensuring the continuity and innovation potential in cassava-related enterprises. Women constitute 61.8% of the workforce in cassava marketing activities, aligning with previous findings of the research of Olaniyi and Adewale (2014) highlighting the role of women in agricultural marketing due to their strong social networks and entrepreneurial inclinations. This gender disparity suggests entrenched gender roles and reflects the need for gender-sensitive policies that further support women's contributions while promoting skill diversification across genders for broader income stability. A predominant 87.5% of the marketers are married. This finding is consistent with the study by Ikuemonisan *et al.* (2020), highlighting the relevance of family networks in the cassava value addition. Married participants may rely on family labor or support systems, which suggests that policy interventions should consider family-centered approaches, particularly those that account for family labor's role in enhancing productivity. Programs that address the economic resilience of single marketers may also be beneficial in promoting equitable access to opportunities within this sector. The levels of education reveal a diverse educational profile, with a notable proportion (51.7%) having completed secondary school level schooling. This finding is consistent with research by Olarinde *et al.* (2020) and Elegbede *et al.* (2018) in that order, indicating a substantial number of marketers with secondary and even tertiary education, a trend likely associated with the increasing complexity of cassava marketing. To capitalize on this educational profile, targeted training in market dynamics, entrepreneurship, and advanced farming practices may help optimize productivity. Meanwhile, adult education initiatives could address literacy needs for actors with lower educational attainment, enhancing overall sectoral competency. The religious breakdown shows Christianity as the predominant affiliation (58.4%), followed by Islam (40.5%), with a minority practicing African Traditional Religion. This demographic distribution aligns with Azeez *et al.* (2022) in Oyo State with community religious composition, suggesting the importance of culturally respectful and inclusive practices.

Interventions that engage local religious institutions could be effective in promoting value addition activities, particularly in disseminating agricultural innovations and fostering community networks that support cassava marketing. Primary and secondary occupations of marketers reveal diverse livelihood strategies, with many actors balancing multiple roles. For instance, 38.2% identify cassava marketing as their primary occupation, while 42.7% report trading as a secondary occupation aligns with the study by Osakue *et al.* (2023). This occupational diversity emphasizes the need for flexible support systems that enable skill development across multiple sectors, enhancing income security. Cross-sectorial training in entrepreneurship and time management could enhance productivity for those juggling various income-generating activities. Household sizes predominantly fall within the 4–6-member range (67.4%), reflecting a typical family structure that supports labor needs in cassava value addition activities, this finding aligns with research by Jamiu (2022) in Ondo State, Nigeria. The role of family labor suggests potential for productivity gains, yet also calls for policies that support household-level resource management and financial literacy. Additionally, providing childcare support or incentives for family labor could alleviate pressures on households engaged in intensive labor, promoting sustained participation in the cassava sector.

#### **Level of Involvement in Cassava Marketing Activities (Time of marketing)**

The data in Table 2 highlights gender-based participation in cassava marketing across various market timings. The most frequent activity is "everyday" marketing (WAI = 2.4), though many females (37) and males (28) report never engaging in it, suggesting inconsistent market access due to transportation or logistical challenges (Abdullahi and Ogundeji, 2022). Seasonal marketing ranks second (WAI = 1.1), indicating that timing, such as harvest periods, influences marketing opportunities. Special cassava markets (WAI = 1.0) are less frequently utilized but offer higher prices (Thakur *et al.*, 2023). These findings suggest that limited access to regular markets affects income

stability, highlighting the need for improved infrastructure and market linkages (Ani *et al.*, 2013).

#### **Level of involvement in cassava marketing activities (Cassava roots measurement)**

Table 3 highlights gender disparities in cassava root measurement and transportation methods. Larger-scale methods, such as "panel van" and "pick-up" (WAI = 1.3), are predominantly male-dominated, reflecting men's greater control over transportation resources for bulk measurements (Usman and Akinola, 2018). In contrast, smaller methods like hand count, basket, tricycle and bus (WAI = 0.4, 0.3 and 0.2) are less frequently used, suggesting women face limitations in accessing these resources. These findings emphasize the need for improved access to transportation and measurement equipment for women, enabling greater participation in cassava marketing and boosting their economic roles (Olaosebikan, 2019).

#### **Level of involvement in cassava marketing activities (Cassava products measurement)**

Table 4 reveals gender disparities in cassava product measurement, with the "bag" method (WAI = 1.5) being most common, dominated by men, reflecting gender barriers in marketing infrastructure (Qian, 2023). Methods like "Congo" (WAI = 1.2) and "bowl" (WAI = 0.8) show more gender balance, indicating women's involvement in smaller-scale trade, limiting income potential. The "basket" method (WAI = 0.3) is rarely used. These findings highlight the need to empower women with access to equipment and training to enhance their participation in larger-scale cassava marketing and economic empowerment (UN Women, 2024).

#### **Assessment of Various Values Added by the Marketers to Cassava Roots**

##### **Level of involvement in cassava marketing activities (Time of marketing)**

Table 5 reveals that, the analysis of cassava marketing timing in Oyo State, Nigeria reveals compelling patterns in trader engagement. Daily marketing emerged as the dominant pattern with the highest weighted average index (WAI) of 2.4, with 65 traders reporting

"Always" participating in daily trade. According to Okpara et al. (2023), this strong preference for daily marketing reflects both the perishable nature of cassava products and the consistent consumer demand in urban areas. Seasonal markets ranked second with a WAI of 1.1, showing significant but lower participation with 29 traders always participating. This pattern, as noted by Obisesan (2018), aligns with harvest cycles and peak production periods. Special cassava markets ranked third (WAI=1.0), with only 4 traders always participating but 39 often participating. Mbarga et al. (2024) suggest that these specialized markets serve as important wholesale hubs and price discovery points. The relatively low participation in five-day markets (WAI=0.8) and weekly markets (WAI=0.6) suggests a gradual shift away from traditional marketing patterns. Apeh et al. (2023) attribute this shift to changing consumer preferences and urbanization patterns that favor more frequent market access. The implications suggest that daily marketing could improve market efficiency and reduce post-harvest losses, as noted by Anyoha et al. (2023). However, Lubinga et al. (2024) emphasize the need for improved infrastructure, storage facilities, and market information networks to support frequent trading activities. The findings also highlight the importance of differentiated market development strategies to accommodate various trading patterns and trader needs.

#### **Level of involvement in cassava marketing activities (Cassava roots measurement)**

Table 6 shows that pick-up trucks as the dominant measurement method (WAI=1.3), followed by panel vans (WAI=1.1), indicating a shift toward vehicle-based measurements in cassava root trading. This preference, according to Egwuma et al. (2019), reflects the modernization of agricultural marketing systems and the need for efficient bulk transportation. Traditional measurement methods like bags (WAI=0.7), hand counting (WAI=0.5), and baskets (WAI=0.5) show lower adoption rates. Haggblade et al. (2012) attribute this to increasing commercialization and the need for standardized measurement systems. The lowest ranked methods, tricycles and buses (both WAI=0.3), suggest limited utility of these

transport modes for measurement purposes. The implications are significant for market development. Ibane et al. (2009) argued that vehicle-based measurements could lead to more standardized pricing systems and improved market integration. However, Beban and Gironde (2023) cautioned about potential marginalization of smaller traders who cannot afford vehicular transportation. The findings suggest a need for balanced market development policies that promote standardization while ensuring inclusivity. Awerije (2014) equally recommended developing hybrid measurement systems that accommodate both modern and traditional methods to ensure market participation across all trader categories.

#### **Level of involvement in cassava marketing activities (Cassava product measurement)**

Table 7 shows that bags as the predominant measurement unit for cassava products with the highest WAI of 1.5, followed by congo measurements (WAI=1.2). According to Awoyale et al. (2017), this preference for standardized units indicates a significant move toward formalized trading systems. The high adoption of bag measurements, with 44 traders always using this method, suggests its reliability and acceptance in the market system. Bowls and paint bowls share the third position (WAI=0.8), indicating moderate adoption of these smaller measurement units. Mbarga et al. (2024) note that these intermediate-sized measurements are particularly important for retail trade and small-scale transactions. The similar WAI for both measurement types suggests their complementary roles in the market system. Traditional measurements like wraps (WAI=0.4) and baskets (WAI=0.2) show limited usage, with only 9 and 4 traders respectively always using these methods. Apeh et al. (2023) attribute this decline to increasing market integration and the need for consistent measurement standards across different markets. The low adoption of traditional measurements reflects a broader shift toward standardization in agricultural marketing. The implications of these measurement patterns are substantial for market development. According to Adeniyi et al. (2023), standardized measurements facilitate better price comparison

and market efficiency. However, the transition from traditional to standardized measurements requires careful management to ensure market inclusivity and preserve cultural practices where appropriate.

### **Perceived Benefits of Involvement in Cassava Value Addition (Cassava Marketing)**

Table 8 highlights the benefits analysis demonstrates income generation as the primary advantage of cassava marketing (WAI=2.9), with 80 traders (49 female, 31 male) reporting it as a consistent benefit. According to Ewugi and Ilyasu (2024), this strong economic benefit particularly impacts women who often dominate cassava marketing activities. Poverty reduction ranks second (WAI=2.4), while increased social status and recognition rank third (WAI=2.1). Prince et al. (2023) note that these benefits extend beyond economic gains to include social empowerment. Employment opportunities, skill development, and community harmony share the fourth position (WAI=2.0), indicating their significant but secondary importance. The gender-differentiated responses revealed interesting patterns, with women generally reporting higher participation in daily marketing activities. Agada et al. (2018) suggest that this gender dimension has important implications for market development and policy formulation. The lower ranking of government revenue generation (WAI=1.5) indicates that traders prioritize personal and community benefits over broader institutional impacts. These findings imply the need for comprehensive market development strategies that enhance both economic and social benefits. Masamha et al. (2019) emphasize the importance of gender-sensitive policies and support systems to maximize these benefits across all participant categories.

### **Factors Associated with Marketers' Involvement in Cassava Value Addition**

The data in Tables 9a and 9b present the results of a factor analysis conducted on marketers' involvement in cassava value addition. The factor analysis identifies the underlying factors that explain the relationships between the observed variables in terms of the marketers' involvement in cassava value addition.

As shown in the results, the analysis also retained 6 factors (Factor 1, Factor 2, Factor 3, Factor 4, Factor 5 and Factor 6) which are jointly significant, suggesting that these six factors account for most of the variability in marketers' involvement in the cassava value addition activities. Given the results, Factor 1 has the highest eigenvalue (6.04763), explaining 33.60% of the total variance. Factor 2 also has an eigenvalue of 2.29956, explaining 12.78% of the variance, while Factor 3 has an eigenvalue of 1.44766, explaining 8.04% of the variance. In the same vein, a factor 4 has an eigenvalue of 1.26013, explaining 0.7% of the variance, while Factor 5 also has an eigenvalue of 1.18425, explaining 6.58% of the variance. The findings also revealed Factor 6 with an eigenvalue of 1.10811, which also explains about 6.16% of the variance in the marketers' involvement in cassava value addition. Given the difference column in Table 4.51a, showing the difference between the eigenvalues of consecutive factors which assesses how much information each additional factor contributes, the findings revealed that the difference decreases sharply after the first two factors, indicating that subsequent factors explain less variance. Also, the six retained factors cumulatively explain 74.15% of the variance, meaning that the retained factors account for most of the relationships in the data, by summarizing the involvement of marketers in cassava value addition without losing much information. Most importantly, the analysis returned a chi-square test value is 897.09, with the p-value of 0.0000. This test shows that the factor model fits the data significantly better than a model that assumes independence between the variables.

### **Constraints against Marketers' Involvement in Cassava Value Addition**

Table 10 highlights challenges in cassava marketing, showing both common and gender-specific issues. The constraints analysis identifies inadequate access to credit and finance as the primary challenge (WAI=2.1), with 52 traders (23 female, 29 male) reporting it as very severe.

Ugwu et al. (2024) noted that financial constraints particularly affect small-scale traders and women in the market system.

Market regulation inadequacies rank second (WAI=1.9), followed by high competition (WAI=1.8). Poor transportation and storage facilities share the fourth position (WAI=1.6), indicating significant infrastructure challenges. Akinngbe (2010) emphasized how these constraints limit market efficiency and trader profitability. Gender-based discrimination (WAI=1.1) and lack of market information (WAI=0.9) show lower but notable severity. Mwakanyamale et al. (2021) suggested that these structural barriers particularly affect women's participation and success in cassava marketing. The relatively low ranking of limited market access (WAI=0.6) indicates that physical market access might be less problematic than other constraints. This suggests the need for multi-faceted interventions. Manganyi et al. (2023) also recommended improving access to financial services, strengthening market regulations, and developing infrastructure. Also, gender-sensitive policies and capacity-building programs are crucial for addressing both economic and social constraints in the cassava marketing system.

## CONCLUSION

Cassava value addition in Oyo State, Nigeria, involves a range of actors who facilitate the crop's journey from farm to market. Despite providing substantial income and employment opportunities, especially in rural areas, this sector faces significant challenges. Key issues include limited financial access, labor shortages and high costs of value-added processes, gender disparities, and inadequate infrastructure. The predominance of small-scale actors in cassava marketing reflects the sector's smallholder roots. To scale these operations, policies that improve access to gender-friendly equipment and financial inclusion are essential. Addressing gender inequalities in resource access and opportunities is crucial for enhancing equity and efficiency in the value chain.

## RECOMMENDATIONS

To enhance the cassava sector in Oyo State, several key recommendations are proposed for implementations by the government and non-governmental organizations who are saddled with agri-food sector development.

First, infrastructure improvements, such as investments in rural roads and fuel stability, will reduce transportation costs and improve market access, thereby increasing profitability for cassava producers. Financial inclusion is also critical, with targeted loan products and the support of rural microfinance institutions to provide small-scale farmers with better access to capital.

Gender-sensitive policies should be implemented to reduce disparities in access to credit, equipment, and markets, ensuring women can equally benefit from sector growth. Strengthening cooperatives will improve market and resource access, while training in financial management and technical skills will empower farmers to make informed decisions. Finally, market stabilization efforts, such as price stabilization and enhanced market information systems should be implemented by the government. This will protect cassava industry, especially the cassava producers from price fluctuations. Together, these recommendations will foster a resilient, inclusive, and profitable cassava sector in Oyo State, promoting sustainable growth and improving the livelihoods of all stakeholders involved.

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**Table 1: Socio-Economic Features of the Respondents (Marketers) (N = 89)**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Mean</b>
<b>Age</b>			44.5
< 30	7	7.9	
31-40	19	21.4	
41-50	44	49.4	
Above 50	19	21.4	
<b>Gender</b>			
Female	55	61.8	
Male	34	38.2	
<b>Marital Status</b>			
Single	1	6.7	
Married	78	87.5	
Separated	2	2.3	
Divorced	0	0.0	
Widowed	3	3.4	
<b>Level of Education</b>			
No formal Education	9	10.1	
Primary Incomplete	5	5.6	
Primary Complete	8	9.0	
Secondary Incomplete	10	11.2	
Secondary Complete	46	51.7	
Tertiary	11	12.4	
<b>Religion</b>			
Christianity	52	58.4	
Islam	36	40.5	
African Traditional	1	1.1	
<b>Primary Occupation</b>			
Farming	32	36.0	
Civil Service	7	7.9	
Cassava Harvesting	-	-	
Cassava Transporting	-	-	
Cassava Processing	-	-	
Cassava Marketing	34	38.2	
Trading	16	18.0	
<b>Secondary Occupation</b>			
Farming	14	15.7	
Civil Service	1	1.1	
Cassava Harvesting	-	-	
Cassava Transporting	-	-	
Cassava Processing	-	-	
Cassava Marketing	36	40.1	
Trading	38	42.7	
<b>Household Size</b>			5.1
< 3	11	12.4	
4-6	60	67.4	
7-9	18	20.2	
Above 10	-	-	

Source: Data analysis, 2024

**Table 2: Level of involvement in cassava marketing activities (Time of marketing)**

Time of marketing	Always (3)		Often (2)		Rarely (1)		Never (0)		Weight	WAI	Rank
	Female	Male	Female	Male	Female	Male	Female	Male			
Everyday	37	28	6	2	4	0	8	4	215	2.4	1 <sup>st</sup>
Seasonal market	11	18	2	1	4	1	38	14	98	1.1	2 <sup>nd</sup>
Special cassava market	4	0	15	24	2	0	34	10	92	1.0	3 <sup>rd</sup>
Five days	10	1	2	4	9	19	34	10	73	0.8	4 <sup>th</sup>
Weekly basis	4	0	4	2	15	18	32	14	57	0.6	5 <sup>th</sup>

Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index  
Source: Data analysis, 2024

**Table 3: Level of involvement in cassava marketing activities (Cassava roots measurement)**

Measurement of cassava roots	Always (3)		Often (2)		Rarely (1)		Never (0)		Weight	WAI	Rank
	Female	Male	Female	Male	Female	Male	Female	Male			
Panel van	12	23	6	0	0	1	37	10	118	1.3	1 <sup>st</sup>
Pick up	7	3	12	22	3	0	33	9	113	1.3	1 <sup>st</sup>
Bag	13	3	6	2	2	2	34	27	68	0.8	3 <sup>rd</sup>
Hand count	11	0	3	1	2	1	39	32	44	0.4	4 <sup>th</sup>
Basket	9	4	0	0	4	0	42	30	43	0.4	4 <sup>th</sup>
Tricycle	2	1	3	3	8	1	42	29	30	0.3	6 <sup>th</sup>
Bus	2	0	3	1	8	2	42	31	24	0.2	7 <sup>th</sup>

Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index  
Source: Data analysis, 2024

**Table 4: Level of involvement in cassava marketing activities (Cassava products measurement)**

Measurement of cassava products	Always (3)		Often (2)		Rarely (1)		Never (0)		Weight	WAI	Rank
	Female	Male	Female	Male	Female	Male	Female	Male			
Bag	20	24	1	0	0	1	34	9	135	1.5	1 <sup>st</sup>
Congo	24	7	2	1	6	2	23	24	107	1.2	2 <sup>nd</sup>
Bowl	2	1	7	21	6	1	40	11	74	0.8	3 <sup>rd</sup>
Paint bowl	7	5	6	1	7	17	35	11	74	0.8	3 <sup>rd</sup>
Wraps	8	1	2	2	3	2	42	29	40	0.4	5 <sup>th</sup>
Basket	3	0	4	0	2	3	47	30	22	0.3	6 <sup>th</sup>

Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index  
Source: Data analysis, 2024

**Table 5: Level of involvement in cassava marketing activities (Time of marketing)**

Time of marketing	Always (3)	Often (2)	Rarely (1)	Never (0)	Weight	WAI	Rank
Everyday	65	8	4	12	215	2.4	1 <sup>st</sup>
Seasonal market	29	3	5	52	98	1.1	2 <sup>nd</sup>
Special cassava market	4	39	2	44	92	1.0	3 <sup>rd</sup>
Five days	11	6	28	44	73	0.8	4 <sup>th</sup>
Weekly basis	4	6	33	46	57	0.6	5 <sup>th</sup>

Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index

Source: Data analysis, 2024

**Table 6: Level of involvement in cassava marketing activities (Cassava roots measurement)**

Measurement of cassava roots	Always (3)	Often (2)	Rarely (1)	Never (0)	Weight	WAI	Rank
Pick up	35	6	1	47	118	1.3	1 <sup>st</sup>
Panel van	10	34	3	42	101	1.1	2 <sup>nd</sup>
Bag	16	8	3	61	67	0.7	3 <sup>rd</sup>
Hand count	13	0	4	71	43	0.5	4 <sup>th</sup>
Basket	11	4	3	71	44	0.5	4 <sup>th</sup>
Tricycle	3	6	9	71	30	0.3	6 <sup>th</sup>
Bus	2	4	10	73	24	0.3	6 <sup>th</sup>

Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index

Source: Data analysis, 2024

**Table 7: Level of involvement in cassava marketing activities (Cassava product measurement)**

Measurement of cassava products	Always (3)	Often (2)	Rarely (1)	Never (0)	Weight	WAI	Rank
Bag	44	1	1	43	135	1.5	1 <sup>st</sup>
Congo	31	3	8	47	107	1.2	2 <sup>nd</sup>
Bowl	12	7	24	46	74	0.8	3 <sup>rd</sup>
Paint bowl	3	28	7	51	72	0.8	3 <sup>rd</sup>
Wraps	9	4	5	71	40	0.4	5 <sup>th</sup>
Basket	4	2	5	77	21	0.2	6 <sup>th</sup>

Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index

Source: Data analysis, 2024

**Table 8: Benefits of Involvement in Cassava Marketing**

Benefits of Involvement in Cassava Marketing	Always (3)		Often (2)		Rarely (1)		Never (0)		Weight	WAI	Rank
	Female	Male	Female	Male	Female	Male	Female	Male			
Income generation	49	31	4	2	0	1	2	0	253	2.8	1 <sup>st</sup>
Reduced poverty	33	11	16	23	0	0	6	0	210	2.4	2 <sup>nd</sup>
Increase social status and recognition within the community	22	28	6	0	20	5	7	1	187	2.1	3 <sup>rd</sup>
Employment opportunity	26	28	0	1	11	3	18	2	178	2.0	4 <sup>th</sup>
It promotes harmony among women and men	20	9	8	20	23	5	4	0	171	2.0	4 <sup>th</sup>
Skill development & entrepreneurship	17	9	14	20	21	5	3	0	172	2.0	4 <sup>th</sup>
It promotes gender equality	16	6	12	21	22	5	5	2	159	1.8	7 <sup>th</sup>
Generation of revenue to government	10	6	18	22	1	1	26	5	130	1.5	8 <sup>th</sup>

Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index

Source: Data analysis, 2024

**Table 9a: Factors Analysis - Marketers' Involvement in Cassava Value Addition**

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	6.04763	3.74807	0.3360	0.3360
Factor 2	2.29956	0.85190	0.1278	0.4637
Factor 3	1.44766	0.18753	0.0804	0.5442
Factor 4	1.26013	0.07588	0.0700	0.6142
Factor 5	1.18425	0.07614	0.0658	0.6800
Factor 6	1.10811	0.16198	0.0616	0.7415
Factor 7	0.94613	0.15554	0.0526	0.7941
Factor 8	0.79058	0.15229	0.0439	0.8380
Factor 9	0.63829	0.11617	0.0355	0.8735
Factor 10	0.52212	0.11536	0.0290	0.9025
Factor 11	0.40676	0.03646	0.0226	0.9251
Factor 12	0.37030	0.08996	0.0206	0.9456
Factor 13	0.28034	0.06742	0.0156	0.9612
Factor 14	0.21292	0.04227	0.0118	0.9730
Factor 15	0.17065	0.04487	0.0095	0.9825
Factor 16	0.12578	0.01434	0.0070	0.9895
Factor 17	0.11144	0.03407	0.0062	0.9957
Factor 18	0.07737	-	0.0043	1.0000

Retained factors = 6; Number of observation = 87 ; LR test: independent vs. saturated:  $\chi^2(153) = 897.09$ ; Prob> $\chi^2 = 0.0000$

Source: Data analysis, 2024

**Table 9b: Factors Loadings - Marketers' Involvement in Cassava Value Addition**

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Uniqueness
Everyday market	0.0476	-0.6569	0.5543	0.3054	0.2007	0.1673	0.0975
Five days market	0.5943	0.3689	0.0477	-0.1729	-0.2817	0.2336	0.3447
Weekly basis	0.5127	0.2541	-0.2968	0.4508	0.0338	0.1831	0.3466
Special cassava market	0.8594	0.0857	0.098	-0.1258	-0.0618	0.0183	0.2245
Seasonal market	0.7481	-0.3053	0.0095	0.2156	0.1062	-0.1823	0.2561
Hand count-root	-0.3508	-0.0824	0.2144	-0.2636	0.6572	0.4298	0.1381
Basket-root	-0.1719	0.5201	0.0463	0.4763	0.4383	-0.3786	0.1355
Bag-root	-0.4829	0.0913	0.3846	0.0445	-0.4952	0.0629	0.3594
Tricycle-root	0.1761	0.6182	0.2199	-0.2813	-0.0691	0.0213	0.4542
Bus-root	0.2072	0.6548	0.414	-0.1657	0.2105	-0.0944	0.2762
Panel van-root	0.7885	0.0479	0.1786	-0.2071	0.1131	0.092	0.28
Pick-up-root	0.8726	-0.1731	0.0604	0.5002	-0.0696	0.1422	0.1773
Wraps-products	-0.2541	0.0263	0.5219	0.3534	-0.2969	-0.2079	0.406
Congo-products	-0.6429	0.0897	0.3783	0.1365	-0.0633	0.4193	0.2371
Basket-products	0.07	0.4758	-0.2549	0.4885	-0.0435	0.5677	0.1409
Bowl-products	0.6141	0.3196	0.2904	0.1181	0.1224	-0.1941	0.3699
Bag-products	0.8584	-0.1361	0.0629	-0.0436	-0.0284	0.085	0.2307
Paint bowl-products	0.8316	-0.2869	0.1424	0.1521	-0.0516	0.0461	0.178

Source: Data analysis, 2024

**Table 10: Constraints against Involvement in Cassava Value Addition (Marketer)**

Constrains to Utilization	VS (3)		S (2)		M (1)		NC (0)		Weight	WAI	Rank
	Female	Male	Female	Male	Female	Male	Female	Male			
Inadequate access to credit and finance	23	29	4	0	20	2	8	3	186	2.1	1 <sup>st</sup>
Inadequate market regulations and standards	15	27	5	2	29	2	6	3	171	1.9	2 <sup>nd</sup>
High competition	11	6	23	26	9	0	12	2	158	1.8	3 <sup>rd</sup>
Poor transportation & storage facilities	9	6	17	23	16	4	13	1	145	1.6	4 <sup>th</sup>
Poor storability of cassava roots	10	26	5	3	18	1	22	4	143	1.6	4 <sup>th</sup>
Poor storability of cassava products	7	7	6	2	23	21	19	4	102	1.4	6 <sup>th</sup>
Inadequate marketing skills and training	5	4	14	5	26	25	9	0	116	1.3	7 <sup>th</sup>
Limited market demand	7	3	7	4	35	26	6	1	113	1.3	7 <sup>th</sup>
Inadequate packaging and labeling	12	7	11	0	19	8	13	19	106	1.2	9 <sup>th</sup>
Gender-based discrimination and cultural barriers	3	4	11	3	26	21	15	6	96	1.1	10 <sup>th</sup>
Lack of marketing cooperatives or associations	5	4	12	2	14	21	24	7	90	1.0	11 <sup>th</sup>
Lack of market information	6	2	2	4	21	22	26	6	79	0.9	12 <sup>th</sup>
Limited access to markets	2	3	6	1	21	2	26	28	52	0.6	13 <sup>th</sup>

**Note:** VS - Very Severe, S - Severe, M - Mild, NC – Not at all a Constraint ; Figures in parentheses, at the headings are weights of scale; WAI = Weighted Average Index

**Source:** Data analysis, 2024