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RESILIENCE STRATEGIES TO COMBAT THE SHOCKS OF ECONOMIC SITUATION AMONG CASSAVA PROCESSORS IN OGBOMOSO AGRICULTURAL ZONE OF OYO STATE, NIGERIA

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Abstract. Cassava (*Manihot esculenta* Crantz) is the second most consumed staple food crop after maize in Africa and is the main food security crop after maize in Nigeria. A study, aimed at analyzing resilience strategies adopted by cassava processors to combat economic situation in Ogbomoso Agricultural Zone of Oyo State, was conducted. Surveys were conducted in three blocks (Oriire, Ogo-Oluwa and Surulere). A structured questionnaire was administered to a total of 130 randomly selected households. Majority of the respondents had a mean age ranging between 46 and 51 years. It was also revealed that majority (85.0%, 92.5% and 95.7% respectively) were married. The levels of usage of improved cassava processing methods range between 57.5% and 65.2%. Cassava processors engaged majorly in value addition to products with a weighted mean score (WMS) of 3.04 to combat economic situation in the study area.

The result of linear regression analysis indicated that the usage of improved cassava processing methods ($t=3.436^{***}$; $p=0.01$; Adjusted R^2 value = 87.13%) was significantly related with the resilience strategies adopted to combat the shocks of economic situation. It was concluded that different resilience strategies were adopted which had significant influence in addressing the economic situation in the study area.

There is therefore need for all stakeholders in rural development to gear up efforts to educate the respondents on reliable resilience strategies in cushioning the effects of economic situation.

Keywords: *Cassava, processors, value addition, resilience, shocks, economic situation, processing equipment, household level.*

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INTRODUCTION

Cassava (*Manihot esculenta* Crantz) is the second most consumed staple food crop after maize in Africa. Cassava production is vital to the economy of Nigeria as the country is the world's largest producer of the commodity, with about 54 million metric tonnes [1,2]. Cassava production stood at about 278 million tonnes; Africa's total production was about 170 million tonnes (about 56% of world production) [3]. Nigeria produced about 60 million tonnes [3]. The majority (88%) of cassava produced in Africa is used for human food, with over 50% used in the form of processed products [4]. Other uses in animal feed and for industrial purposes (starch, ethanol) are as yet very minor. Although the crop is considered as a staple in many countries, this situation is changing in some countries where cassava is now an industrial and cash crop [5].

Rural communities can be understood as vulnerable social ecological systems (SES) [6]. So, there is need to build resilience to withstand internal and external stresses from social, economic, political and health status changes [7,8]. It had been established that many aspects of adaptive capacity reside in social networks [9] and that these are a crucial source of resilience [10-12]. Resilience has emerged as a key concept across disciplines for investigating responses to changes in human and ecological systems [13]. Apparently, people's capabilities are said to play a key role in the response to the current economic crisis in Nigeria. In respect of the aforementioned evidences, investigations into the role of resilience capacities especially through social networks during social, economic and ecological changes is growing at a fast pace [14].

It is therefore highly imperative to analyze resilience strategies adopted by cassava processors to combat current economic situation in Oyo State.

Objectives of the study

The general objective of the study is to analyze resilience strategies adopted by cassava processors to combat current economic situation in Ogbomoso Agricultural Zone of Oyo State.

Specific objectives of the study

The specific objectives of the study are to;

(1) describe the socio-economic characteristics of the rural cassava processors in Ogbomoso Agricultural Zone of Oyo State, Nigeria; (2) determine the level of usage of improved cassava processing methods; and (3) ascertain the resilience strategies employed to combat the shocks of economic situation among cassava processors in the study area.

RESEARCH METHODOLOGY

Study Area

The study was carried out in Ogbomoso Agricultural Zone of Oyo State, Nigeria. Oyo State lies between latitude 7°N and 19°N of the equator and between 2.5°E and 5°E of the prime meridian. The State has a total population of 5.6 million going by the provisional population figure of 2006 [15], and a land area of 27,140,000 square kilometer. Annual mean rainfall ranges above 1000mm; rainy season in the state averages eight months in a year.

Mean temperature varies from daily minimum of 18.9°C to a daily maximum of 35°C. Humidity is quite high in Oyo State. Relative humidity in the State is 70 percent with a maximum of about 60 percent in the evening and a maximum of around 80 percent in the morning. The settlement pattern shows that so many people of different Nigerian ethnic background reside in Oyo State. The Yoruba ethnic group constitutes the majority of the population living in Oyo State. There are also non-Nigerians who live in Oyo State.

Population of this study involved all cassava processors in Ogbomoso Agricultural Zone of Oyo State. The study employed multistage sampling technique in selecting sample for this study. The first stage involved purposive selection of 3 blocks from Ogbomoso agricultural zone which are known to be rural in nature. According to [16] and [17], a purposive sample is a non-representative subset of some larger population, and is constructed to serve a very specific need or purpose. Thereafter, there was random selection of three (3) cells from each of the selected blocks. Next, the list of registered cassava processors in each of the selected cells were secured from the ADP section of the respective local government areas of the selected cells. A proportionate sampling procedure was utilized in the selection of one hundred and thirty (130) respondents from Ogbomoso Agricultural Zone for the study.

An interview schedule was used to obtain the necessary data (socio-economic characteristics, level of usage of improved cassava processing methods; and the resilience strategies to combat the shocks of economic situation among cassava processors in the study area.

A very important part of the questionnaire construction process is its piloting, known as pre-testing. This involves testing research instrument in conditions as similar as possible to the research situation, in order to check for glitches in wording of questions, lack of clarity of instructions etc. The pretest was conducted using the same protocol and setting as the survey and is typically conducted once the questionnaire and procedures have been finalized. Therefore, in this study, the interviewed schedule was administered on 13 respondents who were cassava processors in the rural areas outside the study area in order to remove the ambiguous sentences, statements or questions that were likely misunderstood.

The data obtained were analyzed using descriptive and inferential statistics. The descriptive tools include frequency distribution and percentages, while for inferential statistics linear regression analysis was used for the formulated hypothesis of the study.

RESULTS AND DISCUSSIONS

Socio-economic Characteristics

Table 1 indicated that the mean age of the respondents range between 46 and 51 years respectively. This implies that most of the respondents are still active to engage in cassava processing. The mean age in this research work is similar to the mean age (52 years) reported by [18].

It was also revealed that majority (85.0%, 92.5% and 95.7%) of the respondents from Surulere, Oriire and Ogo-Oluwa were married respectively. This is similar with the work of other authors [19] who claimed that cassava processing enterprise is occupied by married people (especially the women).

This development indicated the likelihood of spouse and/or other family members getting involved in the cassava processing enterprise especially in the area of labour supply. Similarly, the sharing of the proceeds (products and/or income) may also be determined through decision making in a family setting arrangement.

Table 1. Distribution of respondents by Socio-economic Characteristics (n = 130)

Socio-economic Characteristics	Oriire (n = 67)		Ogo-Oluwa (n = 23)		Surulere (n = 40)	
	Freq.	%	Freq.	%	Freq.	%
Age						
≤ 30	0	0.0	1	4.3	1	2.5
31 – 40	8	12.0	2	8.7	10	25.0
41 – 50	26	38.8	10	43.5	16	40.0
51-60	25	37.2	8	34.8	3	7.5
Above 60	8	12.0	2	8.7	10	25.0
Mean	51		49		46	
Marital status						
Single	2	3.0	1	4.3	4	10.0
Married	62	92.5	22	95.7	34	85.0
Separated	0	0.0	0	0.0	0	0.0
Widowed	3	4.5	0	0.0	2	5.0

Source: Field Survey, 2025.

Categorization of level of usage of improved cassava processing methods

Table 2 showed the categorization of the level of usage of improved cassava processing methods. It was revealed that levels of usage of improved cassava processing methods across the three blocks were at moderate levels, ranging between 57.5% and 65.2%. This development connotes overreliance on traditional methods of processing since cassava is usually consumed in processed forms. Obviously, cassava processing by traditional methods is labour-intensive and time consuming. This finding is consistent with the report of some scholars [20] who opined that industrial utilization of cassava products is increasing but still accounts for less than 5% of the total production. Similarly, the trend in the level of usage of improved cassava processing methods observed in this current research is a clear indication of increasing gap in technological development and transfer across communities. It is important to recognize that the usage of a given processing methods dynamics are also highly context-specific, with unique structures and organization in different locations and regions.

Increasing sensitization and awareness of proven technologies especially on value addition to products is essential to enhance optimal utilization of value addition technologies thereby engendering sustainable income flow for the end users.

However, it must be noted that level of usage of improved cassava processing methods can become strained when any one of the factors required for their proper operation is affected negatively.

Table 2: Distribution of respondents by categorization of level of usage of improved cassava processing methods

Categorization	Oriire (n = 67)		Ogo-Oluwa (n = 23)		Surulere (n = 40)	
	Freq.	%	Freq.	%	Freq.	%
Low	12	34.3	3	13.0	9	22.5
Medium	42	62.7	15	65.2	23	57.5
High	13	19.4	5	21.8	8	20.0
Mean	27.82		27.52		27.74	
Standard dev.	5.947		4.601		5.610	

Source: Field Survey, 2025

Resilience strategies adopted by cassava processors to combat the shocks of economic situation

Table 3 showed that cassava processors employed the following strategies to adapt with economic situation in Ogbomoso Agricultural zone; value addition to products with a weighted mean score (WMS) of 3.04, livelihood/income diversification (WMS = 2.95), seeking assistance from government (WMS = 2.52), participation in village co-operative society (WMS = 2.35), the use of remittance (WMS = 2.34), early warning system (WMS = 2.14) and skills training/acquisition opportunities (WMS = 2.10). From the finding, it was observed that cassava processors employed diverse portfolio to combat economic situation. Moreover, value addition happened to be main coping strategy adopted by the cassava processors to combat the shocks of economic situation which could be as a result of numerous benefits inherent in it. In short, value addition could help sustain food supply chain through the development of more stable value added cassava products. It must be noted that food supply chains risk disruption from many different types of shocks, including conflict, climate vulnerability, human and animal diseases, financial shocks and local disasters [21,22]. These types of shocks have the potential to negatively impact multiple dimensions of food security. For example, recently experienced shocks, including COVID-19 and the war in Ukraine, have resulted in uneven food availability due to blocked trade, lack of inputs or labour shortages. Supply chain disruptions can also lead to higher food prices that diminish food access and can lead to consumers shifting to less healthy diets. Markets can also become unstable, and prices can rise sharply due to sudden trade restrictions, low stock levels, transportation blockages and infrastructural damage or weakness. Disruptive food system shocks can also lead to wastage, which undermines sustainability. And food supply chain vulnerabilities can deepen inequalities and weaken livelihoods in ways that diminish the ability of food system actors (including producers, workers, traders and consumers) to interact with food systems on their own terms, [23].

Table 3. Distribution of respondents by Resilience strategies adopted by cassava processors to combat current economic situation

Resilience strategies	WMS	Rank
Seeking assistance from government	2.52	3 rd
Livelihood/ income diversification	2.95	2 nd
Value addition to products	3.04	1 st
Skills training/acquisition opportunities	2.10	7 th
The use of remittance	2.34	5 th
Participation in village co-operative society	2.35	4 th
Early warning system	2.14	6 th

Source: Field Survey, 2025

Relationship between usage of improved cassava processing methods and resilience strategies adopted to combat the shocks of economic situation

Table 4 showed the result of linear regression analysis showing the relationship between usage of improved cassava processing methods and resilience strategies adopted to combat the shocks of economic situation. It was revealed that the usage of improved cassava processing methods ($t = 3.436^{***}$; $p = 0.01$) was significantly related with the resilience strategies adopted to combat the shocks of economic situation. The adjusted R square value was found to be 87.13% implying that usage of improved cassava processing methods had a strong decisive influence on the resilience strategies adopted to combat the shocks of economic situation. The fact that the relationship was significant at 1% level further enacting the unparalleled contributions of technological development in reinforcing resilience strategies adopted to combat the shocks of economic situation. In fact, the adoption of resilience strategies to combat the shocks of economic situation will increase by 30.4% with the usage of improved cassava processing methods. This could be because cassava processors using improved processing methods will get more quality products with high premium which will enhance their income level thereby improving household food security. This finding is in tandem with the assumption of [18] who believed that access to improved technologies will expose the end users to agricultural information and technology, which will enhance productivity and improve household food security.

Table 4. Result of linear regression analysis of relationship between usage of improved cassava processing methods and resilience strategies adopted to combat the shocks of economic situation

Variable	B-Value	Std. Error	T-Value	P-Value
Constant	42.266	2.514	16.815	0.000
Resilience index	0.305	0.089	3.436***	0.001

Adjusted R square Value = 0.8713 (87.13%)

***Significant at 1% level

Source: Field Survey, 2025.

CONCLUSION AND RECOMMENDATIONS

It was concluded that different resilience strategies were adopted which had significant influence on the cassava processors in combating the economic situation in Ogbomoso Agricultural zone of Oyo State, Nigeria. There is therefore need for all stakeholders in rural development to gear up efforts to educate the respondents on reliable resilience strategies in cushioning the effects of current economic situation.

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STRATEGIJE OTPORNOSTI ZA ELIMINISANJE NEPOVOLJNIH EFEKATA EKONOMSKE SITUACIJE KOD PRERADE KASAVE U POLJOPRIVREDNOJ OBLASTI OGBOMOSO U DRŽAVI OYO, NIGERIJA

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Apstrakt: Kasava (*Manihot esculenta Crantz*) ili Manioka je druga najčešće konzumirana osnovna kultura posle kukuruza u Africi i glavna kultura za bezbednost hrane posle kukuruza u Nigeriji. Sprovedena je studija, čiji je cilj bio da analizira strategije otpornosti koje su usvojili prerađivači kasave kako bi se suočili sa ekonomskom situacijom u poljoprivrednoj zoni Ogbomoso u državi Oyo.

Ankete su sprovedene u tri bloka (oblasti Oriire, Ogo-Oluwa i Surulere). Strukturirani, prilagođen upitnik je primenjen na ukupno 130 slučajno odabranih domaćinstava. Većina ispitanika imala je prosečnu starost između 46 i 51 godine. Takođe je uvrđeno da je većina (85,0%, 92,5% i 95,7% respektivno) bila u braku. Nivoi korišćenja poboljšanih metoda prerađivanja Kasave kreću se između 57,5% i 65,2%.

Prerađivači Kasave su se uglavnom bavili dodavanjem vrednosti proizvodima sa ponderisanom prosečnom ocenom (WMS - Weighted Mean Score) od 3,04 kako bi se suočili sa ekonomskom situacijom u području istraživanja.

Rezultat linearne regresione analize pokazao je da je upotreba poboljšanih metoda prerade Kasave ($t = 3,436^{***}$; $p = 0,01$; Prilagođena vrednost $R^2 = 87,13\%$) značajno povezana sa strategijama otpornosti usvojenim za borbu protiv šokova ekonomske situacije. Zaključeno je da su usvojene različite strategije otpornosti imale značajan uticaj na rešavanje ekonomske situacije u proučavanom području. Stoga je potrebno da svi akteri u ruralnom razvoju pojačaju napore kako bi edukovali ispitanike o pouzdanim strategijama otpornosti u ublažavanju nepovoljnih efekata ekonomske situacije.

Ključne reči: *Kasava, prerađivači, dodavanje vrednosti, otpornost, šokovi, ekonomska situacija, oprema za preradu, tip domaćinstva.*

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