

Profitability of Utilizing High Quality Cassava Flour (HQCF) in Confectionery/Bakery Firms in Parts of North Central Nigeria.

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ABSTRACT

High Quality Cassava Flour (HQCF), derived from cassava tubers, is a significant meal component due to its high carbohydrate content and various benefits. The study investigated the profitability of using HQCF in confectionery and bakery firms in North Central Nigeria. Data was collected from 78 confectionery and bakery firms and 710 workers using structured questionnaires and analyzed with SPSS 23. The study found that most workers were male (62.8%), aged 21-40 (50%), married (75.6%), and had tertiary education (68.0%). Most earned below ₦100,000 monthly, with additional income sources. Key economic factors included land acquisition (61.3% self-purchased), credit access (85.9% from banks), and external financial assistance (91.0%). Firms awareness of government policies on HQCF was high (87.2%), and profitability was significant, with ₦1 invested generating ₦3.76k in revenue. Market availability and cooperative societies for bakers were crucial for success. The study concluded that using HQCF in confectioneries and bakeries in the FCT, Benue, and Nasarawa states is profitable. It revealed that most firms have been losing profit due to non-compliance with policies requiring the inclusion of HQCF in their products. This non-compliance emanates from lapses in policy enforcement. To address this issue, the government should enforce existing policies through relevant agencies. Furthermore, the government should support HQCF availability, offer more credit access, and provide training programs to ensure the sustainability and profitability of HQCF in Nigeria.

Key words: Cassava, HQCF, Composite flour, TR, TVC, Confectionery/Bakery, North Central Nigeria

INTRODUCTION

Cassava (*Manihot esculenta* Crantz) is a vital tuber crop grown in tropical and subtropical regions, providing food for approximately 800 million people worldwide (McCallum et al., 2017). This dicotyledonous plant from the Euphorbiaceae family thrives amid 30°N and 30°S of the equator and is found in Asia, Africa, central and south America (Nasar and Ortiz, 2007). Originating from Latin America about 4000 years ago, Portuguese traders introduced cassava to Africa in 1558, and Europeans brought it to Asia in the late 18th and early 19th centuries (Malik et al., 2020). Recognized as a crucial element in the cuisine of developing countries, the FAO

in 2003 declared it Africa's most important root crop and a major source of calories. Historically, cassava was used medicinally and is an essential carbohydrate source for humans and animals, providing more energy (610 kJ/100g) than other root crops.

Cassava is a staple food in countries like Nigeria, the Democratic Republic of the Congo, Ghana, Brazil, and Indonesia. From Nigeria's capacity to produce about 60 million tons of cassava, it's the world's principal cassava producer according to FAO (2022) report. In recent years, the total harvest generated from cassava production as regards the land area used has continue to increase significantly globally. And Nigeria in the year 2020, led in this aspect by harvesting a total cultivated area of around seventy-seven million ha (FAOSTAT, 2022). At present in Nigeria, the mean annual cassava output stand at around fifty-four million metric tons, as a result of government policy on food import and the engagement of capable hands in cassava production, but this quantity is believed to keep rising (Udemezue et al., 2019).

During the processing of cassava to obtain the desired quality, aside considering the cassava type, activities like drying temperature, methods used, fermentation process and time employed are crucial (Udoro, 2021). Cassava is rich in minerals and vitamins such as calcium, manganese, beta carotene, vitamin C, vitamin A and treats inflammatory, analgesic, and carcinogenic disorders as opined by Siti et al., (2023). Although cassava can be toxic due to cyanide, properly processed cassava treats digestive issues like gastritis, gastroduodenal ulcers, constipation, colitis, liver disease, celiac disease, and diabetes (Zekarias et al., 2019).

Cassava is being used to form a product known as High Quality Cassava Flour (HQCF), a product found in composite flour. This flour according to Adeniji (2013) consist of mixture of cereals, legumes and carbohydrate rich plants coming from tubers like sweet potato, yam, and cassava deficient or having wheat. A times proteinous plants products such as peanuts or soybeans and that from cereals like rice, maize, buckwheat, millet etc. are included into composite flour to boosts its nutritive value. Thus, adding these constituents is done to achieve particular purposes, aid satisfaction and nutritional composition. HQCF in recent times is among the evolving unorthodox ways of using cassava in Nigeria for making confectionary and bakery products. Since wheat flour and cassava have identical properties and so can be substituted at various proportions during food products manufacturing.

HQCF flour was originally produced at the Nigeria's International Institute for Tropical Agriculture (IITA) to serve as substitute to supplementing wheat-flour importation (Falade and Akingbala, 2008). It is non-fermented cassava flour coming from nutritious, newly harvested cassava (after planting 10-12 months). HQCF is a white or creamy smooth flour that is odorless, plain and gluten-free. Cassava with a diverse range of genotypes were evaluated to produce HQCF, since B-carotene-enriched cassava cultivars have excellent viscosity values, thus, making them suitable for goods that require strong gel strength and flexibility (Alamu et al., 2023). The policy by Food and Agricultural Organization has progressively prioritized the use of locally sourced wheat flour alternatives in developing countries like Nigeria. Efforts were geared on identifying suitable wheat-replacement products that could be included in food substances to create new market, aid in price stabilization of food products, create jobs, save foreign-exchange and most prominently reduce expenditure on wheat importation (Gbola, 2012; Layi, 2012).

HQCF is becoming increasingly popular as a gluten-free alternative to wheat flour, given its inclusion in a variety of consumable food products. For instance, utilizing HQCF in pastries, baking and several other cuisine activities has been established and shown to be in use from the household works of bakers, caterers and most manufacturing food producers who have accepted its usefulness (Abass et al., 2001). Thus, its high demand in making bakery/confectionary products like biscuits, bread, snacks etc. for example is pecked at 500,000 metric tons annually, but only 15,000 tones and less is supplied per annum according to PWC (2020). Using composite flour like HQCF is a strategy for developing local Agri-businesses by encouraging farmers to cultivate plenty of the plants discovered to be appropriate for inclusion in baking bread and other pasta products, given the importance of bread and other confectionery products on most Nigerian breakfast tables.

The introduction of HQCF into bread production and confectioneries was due to the high prices and rising demand for wheat, and the unfavorable currency devaluation rates that persist from emerging countries like Nigeria, given its bad economic policies. To encourage the use of composite flour, the Nigerian government

issued an order for the inclusion of 10-20% HQCF in all wheat-flour used to produce food products (Onuegbu et al., 2013), while 40% HQCF was mandated to be included in making bread during Goodluck Jonathan’s regime in 2012 (Sawyerr, 2012). For example, there has been improved profit as advantages derived from using HQCF due to its low cost, compared to that of wheat, mostly from biscuits producers. These HQCF users hinted that the standard of confectionary products like biscuits, pasty foods, and others was better after employing the right manufacturing method and using quality composite flour (Abass, 2006).

Thus, this study’s aim was to assess the economic profitability of using high-quality cassava flour for confectionery and bakery products manufacturing in selected locations of the North Central Nigerian region.

MATERIAL AND METHODS

Geographical Location of Study zone

The study was conducted in North Central Nigeria. The zone is made up of six states being Niger, Kogi, Kwara, Plateau, Benue, Nasarawa and the Federal Capital Territory (FCT) Abuja. The region is located between latitude 6°431’ and 6°451’ North and Longitude 6°601’ and 6°801’ East meridian. It represents one of the six geo-political zones in Nigeria (Figure 1). These states are located in the tropical region of the country and are marked by 2 distinguishing seasons being dry season (starting from November to March) and rainy season which spans from April to October yearly. The peak of rainy season is usually around the month of August. The study location occupies a land mass of 242,425 km² which represent about 26.5% of Nigeria’s total land mass. The North Central region has a total population of 20,226,257 according to NPC (2006).

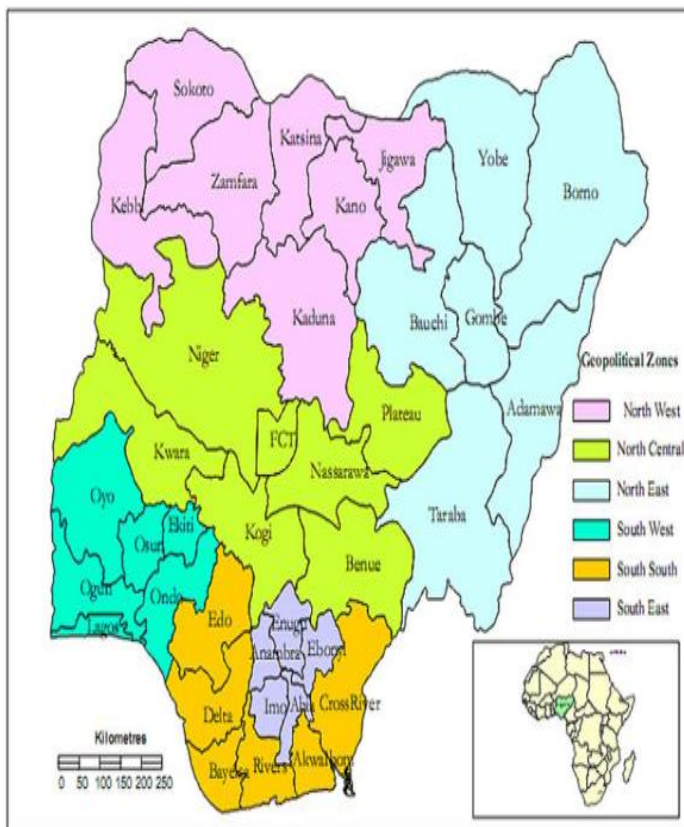


Figure 1: Map of Nigeria showing the six geo-political zones (Source NASDRA, 2013)

Study Area

Two States (Benue and Nasarawa) and the FCT were used for the study. They cover an approximate area of 68,397km square, of the middle belt or North central land area of Nigeria. Three (3) towns from each of the selected states were picked as study sites with at least one from each senatorial district of the states and FCT. This region aside having most of its indigenes being peasant farmers, have individuals who work in diverse

government bodies (i.e. Federal, State and Local government area councils) and others who are business owners, artisans, traders etc. The predominant economic activities of the people living in these states include crop farming, livestock production and other activities like mining (Udo, 2023).

Data Collection Tool

Two sets of self-structured, pretested questionnaires were used to collect data for this study. While confectionary/bakery production managers and owners filled the 2 sets, regular workers filled only a single type.

Sampling Technique.

A simple random sampling technique was used after identifying key firms in selected cities of the region, to obtain the socio-demographic information of confectionary and bakery workers. While a multistage random sampling procedure was employed to generate data for the study from the establishments.

Sample size and sample collection.

Of the 782 first set research tools distributed, a total of 710 (i.e. 230 individuals per state and 250 from the FCT) confectionary/bakery workers, including the firm's production managers (PMs) and few owners participated in the study. 78 copies of the second set of the research tool were also filled by the same companies PMs and few owners.

A multi-stage random selection of firms within the Nigerian North Central region was first purposively performed. In stage two, 195 confectionary and bakery enterprises who attest to using HQCF for producing Bread, pastries like cakes, meat pies etc. located in the study area were identified. In the third stage, 78 establishments across the states (i.e. 25 in each state) and 28 in the FCT were selected base on their consistent daily usage of more than 10% (i.e. 20% or greater HQCF) in kilograms, whilst considering the firm's production capacity and total composite flour usage were chosen.

Data Analysis

Descriptive statistics from SPSS 23 showing percentages, frequencies, distribution tables were inferred from the data, whereas Net profit (profitability of utilizing HQCF by firms) was analyzed using the Gross Margin estimation model.

Net profit analysis

The Net profit generated by the firms was determined using the Gross Margin estimation model as described by Olukosi and Ernabor (1988). The Model states that, Gross Margin (GM), is the difference between the Total revenue (TR) and that of Total variable cost (TVC).

$$GM = TR - TVC$$

Where; GM = Gross Margin (in Naira),

TR = Total Revenue (Naira per products) TVC = Total Variable Cost (Naira per inputs)

TVC = TC - TFC as derived from

TC = TFC + TVC, with TC as (Total Cost per annum) and TFC (Total Fixed Cost)

The Net Profit is calculated using the formula:

Net Profit = Total Revenue (TR) - Total Cost (TC).

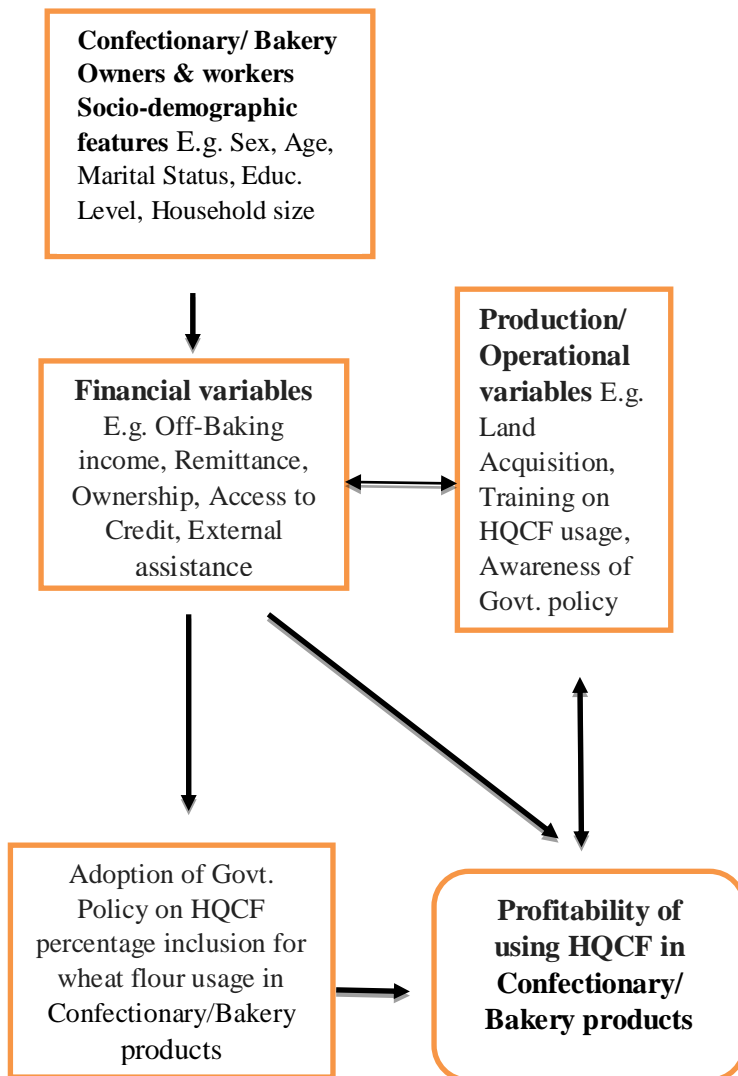


Figure 2. Conceptual Study Framework

The study framework shows how socio-demographic characteristics of Confectionary/bakery owners and workers, operational and financial variables of firms connect to the profitability of using HQCF, vis-a-vis their adoption of government policy on HQCF inclusion in bakery/confectionary products.

RESULTS AND DISCUSSION

Socio-demographic characteristics of confectionary and bakery respondents

The study results (table 1) revealed majority 446 (62.8 %) of the 710 confectionaries and bakeries respondents sampled, as males. Based on age, the least population came from worker less or equal to 20 years (1.3%), while most 355 (i.e. 50%) of them fell within the age bracket of 21 – 40 years. The mean age of the respondents was 42 years. Marital status showed 75.6% (537 respondents) as married, with 483 participants (68.0%) as the highest with tertiary educational qualification. Household presented 382 (53.8%) as the highest coming from families less or equal to 5 in number, with the least 9 (1.3%) from those who are 16 and above in their families, and the Mean for family size recorded is 6. 401 participants with ≤ 3 years-experience formed the majority (56.5%) based on using HQCF.

While monthly off-baking income revealed majority 591 (83.3%) earning equal or below 100,000 with external remittance outside work wages showing 455 (64.1%) of the participants as the highest receiving below or equal 100,000 Naira.

From the study, a significant majority (62.8%) of the workforce were males, likely due to the physically demanding nature of confectionery work, such as bread-making, which often requires high physical strength and handling heavy machinery. This gender imbalance aligns with findings by Shittu and Sowunmi (2019), who reported that males are more involved in bread confectionery production than females. The average age of the workers was 42, indicating a relatively youthful yet mature workforce capable of handling job responsibilities effectively. This age range is consistent with Shittu and Sowunmi (2019), who reported a mean age of 43.8 years for similar workers. Most of these workers (75.6%) were married, contributing to their stability and commitment to their jobs. Additionally, 68% of the workers had tertiary education, suggesting a relatively high educational attainment among the workforce. They typically came from households with five or fewer members, as indicated by 53.8% of the respondents. These findings are consistent with studies by Mafimisebi et al. (2023) in Ondo State, which showed a similar household size distribution.

Most workers had less than three years of experience using HQCF in bread and confectionery production, likely due to inconsistent government policies mandating HQCF inclusion in composite flour usage for bread and confectioneries, which increased to 40% as of the 2015 policy update (Shittu and Sowunmi, 2019). Financially, the monthly average off-baking income of the respondents was modest, with the majority earning around a specific threshold. This suggests that bakery/confectionery workers often engage in other income-generating activities to supplement their income. Factors such as job skills, experience, workload, and flexible shifts enable them to participate in diverse economic activities. Studies by Mudgil & Mudgil (2024) in India and Nkhabutlane et al. (2019) in Lesotho have shown that workers often leverage their culinary skills and flexible schedules to engage in various economic activities.

The mean external remittance received by workers from relatives, friends, and acquaintances was notable, indicating substantial external financial support. This support likely stems from the willingness of relations and friends to boost the enterprises of confectionery and bakery workers

Table 1. Socio-demographic characteristics of confectionaries and bakeries respondents in Benue, Nasarawa and FCT, 2021 (n=710 workers).

FEATURES	FREQ.(n=710)	PERCENT (%)	MEAN
Sex			
Male	446	62.8	
Female	264	37.2	
Age			
≤20	9	1.3	
21-40	355	50.0	
41-60	319	44.9	
> 60	27	3.8	42.06
Marital status			
Single	146	20.6	
Married	537	75.6	
Divorced	9	1.3	

Widow/widower	18	2.6	
Educational Level			
Non-Formal Education	27	3.8	
Primary	45	6.4	
Secondary	155	21.8	
Tertiary Institution	483	68.0	
Household Size			
≤5	382	53.8	
6-10	246	34.6	
11-15	73	10.3	
16+	9	1.3	6.03
Experience In using HQCF (years)			
≤3	401	56.5	
4-5	136	19.2	
6-7	64	9.0	
≥8	109	15.4	4.62
Monthly Off-Baking Income			
≤100,000	591	83.3	
>100,000- below 200,000	64	9.0	
200,000 – below 300,000	18	2.6	
300,000 and	37	5.2	74,142.

above			31
Remittance			
≤100,000	455	64.1	
>100,000- below 200,000	109	15.3	
200,000- below 300,000	73	10.3	
300,000 and above	73	10.3	151,16 0.26
Total	710	100.0	

Source: Research Data (2021)

Economic Characteristics of Confectionary and Bakery firms in Benue, Nasarawa and FCT, North Central Nigeria

The economic characteristics of confectionary and bakery firms presented in Table 2 focused on land acquisitions, access to credit, external assistance, ownership structure, training in HQCF utilization and wheat flour usage. The result on land acquisitions showed majority firms (61.3 %) acquired their land by purchase, while only (9.3%) acquired theirs through community lease. The highest firms' access to credit came from Banks (85.9%) with the least (1.3%) coming from money lenders.

Majority of the firms (91.0%) agreed to receiving external assistance from outside. 46 (59.0%) of the firms were sole ownership, while the least (1.3%) was owned by cooperative. The data revealed that majority 68 (87.2%) of the organizations were aware of government policy on HQCF utilization in confectionaries/bakeries, but only 10 (12.8%) were unaware. Furthermore, 66 (84.6%) of confectionaries/bakeries had provided training on HQCF utilization to their workers and a significant percent 66(84.6 %) of the companies use wheat flour, with only 12 (15.4 %) being non users.

Access to credit is predominantly through banks, which ranked highest in terms of credit access to firms. This preference for bank loans is possibly due to the envisaged profit margins and the speed with which these loans are granted. However, access to credit from cooperative societies was the least utilized option, with savings preceding it. According to Maziya Dixon and Onadipe (2007), without adequate credit, producers are unlikely to afford essential production factors such as inputs, labor, and storage facilities.

The study also found that most confectionery/bakery firms have received some form of assistance from government, private bodies, or non-governmental organizations. This assistance often comes in the form of grants, incentives, or subsidized credit facilities. For example, the South African government exerts some control over bakeries through wheat provision subsidies according to Erasmus & Cownie, (2002). In economically advanced nations, small-scale businesses, including most bakery and confectionery enterprises, are better planned and coordinated due to government appreciation of their economic contributions (Kehinde, 2023). In Nigeria, however, government support for Small Medium Enterprises (SMEs) remains limited. Findings by Echebiri and Edaba (2008) on the prospects of utilizing cassava production for food security and child nutrition recommend increased government support for small enterprises and effective input distribution systems.

The study further revealed that most bakery and confectionery firms in the study area operate as sole proprietorships, a finding corroborated by Brodie-Mends (2022), citing Olodumu (2017), who reported that nearly 96% of Nigerian companies are SMEs, constituting around 90% of the production and manufacturing sector. This high percentage of sole proprietorships could be attributed to the entrepreneurial spirit and the ease of starting small businesses in the region.

Awareness of government policies on the inclusion of HQCF in bakery and confectionery products is high among workers, with 87.2% being aware of such policies and 84.6% having received related training (Sanni et al., 2006). This high level of awareness and training has contributed to the efficient use of composite flour and increased productivity. However, the continued dominance of wheat flour usage suggests a need for stronger enforcement of the policy on HQCF utilization by flour millers (Shittu and Sowunmi, 2019).

Table 2. Economic characteristics of confectionary and bakery firms in Benue, Nasarawa and FCT, North Central Nigeria, 2021 (n=78)

VARIABLE	FREQ.(n=78)	PERCEN (%)
Land acquisitions		
Purchased	48	61.3
Inherited	14	17.9
Government	9	11.5
Community	7	9.3
Access To Credit		
Savings	9	11.5
Bank	67	85.9
Co-operative Society.	1	1.3
Money Lenders	1	1.3
External assistance		
Non- assistance	7	9.0
Assisted	71	91.0
Ownership structure		
Sole Ownership	46	59.0
Partnership	17	21.8
Co-operative	1	1.3
Subsidiary	14	17.9
Awareness of govt.		

policy		
Not aware	10	12.8
Aware	68	87.2
Training on HQCF utilization		
No-attendance	12	15.4
Attendance	66	84.6
Wheat-flour Usage		
Non-user	12	15.4
Users	66	84.6
Total	78	100.0

Source: Research Data (2021)

Profitability of Utilizing HQCF for Confectionery Products

From the outcome of costs incurred and return accrued from confectionery products presented in Table 3, Net profit analysis revealed a mean total revenue (TR) of ₦1,277, 169.87, standard deviation of ₦3,526,897.20K and mean total variable costs (TVC) incurred from various production inputs as ₦274, 94.96k. From the variable costs (VC) of production, results showed the average cost of wheat as the highest (₦90,787.01k), followed by the costs of labor (mean ₦52, 346.88k). Gross margin (GM) mean recorded was ₦1,002,264.91k and result from the analysis displayed profit yield from the companies, with a mean rate of return of ₦3.76k.

From a financial perspective, the cost and return analysis calculated using the Net profit analysis presented an average gross margin that implies profitability for confectionery and bakery enterprises in North Central Nigeria. This finding is consistent with studies by Ehinmowo et al., (2015), Dorothy et al., (2019), and Nwewi et al., (2017), which found that value addition to cassava is profitable in various regions of Nigeria.

Table 3: Profitability of Utilizing HQCF for Bread and other Confectionery Products, in parts of North Central Nigeria

VARIABLES (₦)	MIN.	MAX.	MEAN	SD
TR	50,000	30,500,000	1,277,169.9	3,526,897.2
Variable Costs				
Cost of labour	0.0	118,000	52,346.9	28,006.5
Cost of HQCF	0.01	455,000.0	46,097.1	60,935.6
Cost of Wheat	0.01	1,425,000	90,787.0	175,446.0

Cost of Diesel	0.01	258,750.0	24,885.8	44,714.5
Cost of Electricity	0.1	200,000	6,066.9	23,784.2
Cost of Diesel	0.0	320	89.96	91.6
Cost of Charcoal	0.0	45,000	1,500.0	1,200.5
Cost of firewood	0.0	50,000	120.0	1,725.1
Cost of Enzymes	0.0	9,000	2,385.9	3,265.3
Cost of bread fats	0.0	900.0	363.08	312.7
Cost of salt	0.0	100.50	100.00	195.40
TVC	46,350.0	1,558,650.0	274,905.0	206,340.0
GM	-142,800.0	28,941,350.0	1,002,264.9	3,373,944.0
Rate of Returns	-0.59	18.57	3.75	4.38

KEY: SD= Standard Deviation

Source: Research Data (2021)

Factors affecting the prospects for effective utilization of HQCF in confectionary/bakery products.

The results (Table 4) revealed major factors which could affect the prospects of HQCF utilization in Confectionery/bakery firms in North Central Nigeria as; Available HQCF products market (mean 4.33 with standard deviation 0.907), followed by formation of cooperative society/association for bakers (4.09) and the Potential lower prices for consumer products (4.04) were all presented from the study area. The least mean recorded (3.62) came from training farmers on processing of HQCF using traditional and improved methods with a standard deviation of 1.009 as shown below.

Key factors influencing the prospects of HQCF utilization in these enterprises include the availability of HQCF in the market, the formation of cooperative societies or associations of bakers, and potential lower food prices for consumer products. These factors align with findings from studies conducted in the southern parts of Nigeria by Ogundari et al., (2007) and Ebukiba (2010), who concluded that cassava enterprise is a profitable business.

To maximize the potential of the cassava industry for manufacturing, export, economic development, and food security, Onyediako & Adiele (2022) recommend improved cassava cultivation and the adoption of recent technologies and innovations in processing and packaging. The formation of cooperative societies or associations could significantly boost confectionery and bakery enterprise owners' access to capital and knowledge, thereby increasing profitability. For instance, Thailand, a leading cassava producer and exporter, benefits significantly from trade unions, research organizations, aside government support (Tridge, 2022: Fresho 1993) also highlighted the urban-based determinants of demand and supply for cassava products, emphasizing marketing mechanisms, income elasticity, alternative markets, and relative prices.

Table 4: Factors influencing the prospects of HQCF Utilization in Confectionary Firms in parts of North Central Nigeria.

Variables	Min	Max	Mean	SD.	Rank
Available HQCF market	1	5	4.33	0.907	1 st
Potential lower food prices	1	5	4.04	1.156	3 rd
Filling the demand gap for food	1	5	4.03	1.044	5 th
Formation of cooperative society	1	5	4.09	1.009	2 nd
Availability of HQCF for bakery	1	5	4.04	0.973	3 rd
Creation of network of producers and consumers	1	5	3.83	0.973	6 th
Provision of good infrastructure	1	5	3.63	1.046	12 th
Intensification of cassava breeding campaign	1	5	3.64	1.069	11 th
Industrial use as a cheap raw material for more expensive consumer products	1	5	3.82	1.016	7 th
Increased production	1	5	3.67	1.147	10 th

Training farmers on processing of HQCF using both traditional and improved methods	1	5	3.62	1.009	13 th
Provision of training facilities	1	5	3.68	1.047	9 th
Developing human capital by focusing on youth who are presently restive	1	5	3.49	1.041	14 th
Exploring investment through public/private partnership	1	5	3.38	1.047	15 th
Employment opportunities	1	5	3.72	1.183	8 th

KEY: SD= Standard Deviation

Source: Research Data (2021)

CONCLUSION AND RECOMMENDATIONS

The study assessed the profitability of using High-Quality Cassava Flour (HQCF) in confectionery and bakery production in North Central Nigeria, covering Benue, Nasarawa states, and the FCT. It found a predominantly male workforce, aged 21-40, mostly married, and with tertiary education. Most firms acquired land through self-purchase, accessed credit from banks, and received external financial assistance, with many operating as sole proprietorships.

A significant number of firms were aware of government policies, attended HQCF utilization training, and used wheat flour. The profitability analysis showed a high return on investment, indicating that HQCF use is highly profitable. The study highlighted the importance of market availability for HQCF products, the role of cooperative societies for bakers, potential lower food prices for consumer goods, and the need to train farmers in HQCF processing methods. Therefore, the profitability of HQCF utilization in bakeries and confectioneries in the study area suggests a strong potential for broader adoption.

The study found that both bakeries and confectioneries are not reaching their maximum profit efficiency, indicating room for significant improvement. As such to ensure the continued and sustainable production of HQCF food products for both domestic consumption and export, the following recommendations are put forth:

1. **Policy Formulation:** The Nigerian government through its Policymaking agencies should implement the laid down laws that mandate the inclusion of more than 10% HQCF in Confectionary/Bakery food products, to enhance both domestic and export markets.
2. **Investment Promotion:** Bakeries and confectioneries should be encouraged to capitalize on the significant investment opportunities within the sector, such as the expanding market and the potential for reducing food prices.
3. **Enabling Environment:** Creating a supportive environment for HQCF products will allow bakers and confectioners to sell their goods at favorable prices, thereby motivating sustained production and profitability.
4. **Training Programs:** The government should initiate and support more training programs for bakers and confectioners, as these have been shown to increase profitability by improving HQCF utilization skills
5. **Input Subsidies:** The government should provide subsidies for inputs used in bakery and confectionery firms to reduce production costs and enhance profitability.
6. **Cooperative Societies:** Encouraging bakeries and confectioneries to join cooperative societies will help them access financial support and necessary inputs, such as baking machines and other equipment, from both government and non-governmental organizations.
7. **Consumer and HQCF awareness:** Avenues can be created for the public to be aware of the HQCF policy and bringing to bear knowledge/acceptance of HQCF in baked goods to guarantee steady revenue for cassava farmers, to further supporting the supply chain.

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This work did not receive any external funding from any organizational within or outside Nigeria, but was carried out from the collective funds of the respective authors. Same authors also assert that no conflict of interest was recording from this study.

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