

**CHALLENGES OF CASSAVA PRODUCTION AND PROCESSING AMONG RURAL WOMEN
FARMERS IN GWER WEST LGA, BENUE STATE**

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Abstract

The study investigated the challenges of cassava production and processing among women farmers in Gwer West LGA, Benue State. Specifically, the study examined the nature of cassava production, the products of cassava processing, the contribution of cassava production and processing to the socio-economic status of farmers as well as challenges militating against effective cassava production and processing in Gwer West LGA, Benue State. Data for the study was collected using questionnaire and key informant interviews. Multi-stage random sampling procedure was employed in selecting 328 cassava producers and processors that constituted the respondents for the study. Data collected was analyzed using descriptive statistics such as frequency tables, means and percentages. Findings revealed that, majority of the respondents were into cassava production, and some in processing that is to say that, the rate of cassava production in the area was high and more than half of them spend much their daily hours on the farm during the farming season. Cassava production and processing contributed positively on the socio-economic well-being of the farmers. Findings further revealed that the major challenge of the women was low capital due to unavailability of credit facilities, herders' invasion, lack of access to adequate land. The study recommended the provision of credit facilities, should formation local bams and credit saving association, enhancement of security as well as the increase of women's access to land , to enable them carry out farm activities, farmers should use modern farming techniques in order to ensure bountiful production and processing of cassava.

Introduction

Cassava is one of the world's most important food crops with an annual output of over 34 million tonnes of tuberous roots (Obayelu, Olaleke, Oke & Oladeji, 2018; Asogwa et al. 2013). Cassava manihot esculentacrants is a root crop that is grown across continents of the world such as Africa, Asia and Latin America. It plays an important role in income generation and in the improvement of the livelihood security of the rural population in many third words countries (Adejimo 2015, Oblse & Sani, 2012). Cassava is a woody shrubs of the euphurbiacege family and it surround worldwide. Though cassava production is cut across continents of the world over to do of world production of cassava in concentrated in five countries of Nigeria, Brazil, Thailand, Indonesia and the democratic republic of Congo. Cassava is a major carbohydrate food for over 4000 million people in the world and in Africa it is one of the most important sources of catteries in diet. It is production originated in Brazil where it is a major staple crop for the people, its production has spread to other parts of the worlds and today cassava is not just a staple crop but an industrial crop can be put to many other uses besides consumption. It is a drought resistant crop and can as the most important root crop in terms of area of cultivation (Ano, 2003).

Cassava is produced largely by small-scale farmers using rudimentary farm implements and most of the cassava produced is used for human consumption with less than 5% is used in industries. Cassava per

capita consumption is very high and provides about 80 % of the total energy intake of many Nigerians (Ani 2010). As a food crop, cassava fits well into the farming systems of the smallholder farmers in Nigeria because it is available all year round, thus ensuring household food security. Compared to grains, cassava is more tolerant to low soil fertility and more resistant to drought, pests and diseases (Obisesan 2012). Its roots store well in the ground for months after maturity (Ope-Ewe et al. 2011).

Cassava was introduced in the republic of Congo from South - America about 400 years back (Nweke, 2004) and it forms the staple part of the diet in many of the African countries. Since its introduction, it has spread through Sub-Saharan Africa to become the dominant staples in the diet of the people. Brazil, Indonesia, Nigeria, Thailand and Zaire are the biggest producers, each producing over 10 million tones and together accounting for over 63 percent of World's production (CBN, 2004).

Cassava is regarded as a crop of the poor and is reputed for being a hardy crop that can produce economic fields under conditions of drought, land fertility, poor husbandry and other adverse conditions where other crops cannot survive (Chukwudi et al, 2007 and Dair et al, 2000). Cassava has characteristics that make it valuable as a food crop. It is rich in carbohydrate and starch. It is available all year round.

Nigeria is currently the largest cassava producer in the world with an annual production of over 34 metric tones a year. It is processed and consumed in all variation form in Nigeria. It can be processed into granules (garri), paste (akpu) and chips. It is also consumed fresh boiled raw (especially the sweet varieties). The leaves are consumed as green vegetables as it contains vitamin A and B. It is also processed into cassava flour used for breads, tapioca, it is also used to feed livestock and in the production of ethanol as well as industrial starch. It is used as a binding agent in the production of paper and textiles. On the slides, it is a significant source of food and livelihood security in Nigeria (Food and Agriculture Organization [FAO], 2018).

Benue state is one of the states in north central Nigeria where cassava is produced in commercial quantity. Cassava is grown in most rural areas of Benue State. Though the production is done by males and females the processing is done extensively by women the processing is a very critical harvest losses. The processing of cassava is done manually and the process is fraught with a lot of challenges. In view of this, the study examines challenges of cassava production and processing among rural women farmers in Gwer West LGA, Benue State.

Objectives of the Study

The general objective of this study is to investigate the challenges of cassava production and processing among rural women farmers in Gwer West LGA, Benue State. The specific objectives are to:

1. Assess the nature of cassava production among rural women farmers in Gwer West Local Government Area, Benue State.
2. Examine the products of cassava processing among rural women farmers in Gwer West Local Government Area, Benue State.
3. Assess the contribution of cassava production to the socio-economic status of rural women farmers in Gwer West LGA, Benue State.
4. Examine the challenges of cassava production and processing among rural women farmers in Gwer West LGA, Benue State.

Methodology

This study adopted cross sectional research design. A cross-sectional study limits its observations to a single point in time. The data for this study were collected at a single point in time to address the objectives it sets to achieve. It was carried out in Gwer-West Local Government Area of Benue State. It derives its name from River Gwer, was carved out of Gwer Local Government Area in 1991. Naka, the headquarters of the local government is strategically situated at kilometre 40 along Makurdi – Ankpa -state road. Gwer-west Local Government Area lies within the transition belt between the equatorial main belt of the Southern Nigeria and semi-arid areas of Northern Nigeria. It is located between longitudes 7.3⁰ and 10⁰E and latitudes 6⁰ and 8⁰N with land area of 1,094km². The average annual temperature is 30⁰C with annual rainfall of 2000mm. The population of the people is estimated at 165,100 (NPC 2019). The inhabitants are predominantly Tiv. The

primary occupation of the people is farming and major crops grown are yam, rice, millet, maize and other Nigerian staples. The local government a total of fifteen (15) council wards, these include Sengev, Tsambe/Mbesev, Merkyen, Nyamshi, Gaambe-Ushin, Mbachohon, Mbapa, Tijime, Avihijime, Gbange/Tongov, Toughatee/Injaha, Sengev/Yengev, Saghev/Ukusu, Ikyagev, Mbabuande. Gwer-West local government is basically an agrarian area. It is endowed with large expanse of fertile land. Over 90% of the population is engaged in agriculture. The local government is one of the largest producers of rice in the state in addition to other crops such as maize, millet, yam, guinea corn, soybeans, groundnuts, citrus, while livestock such as cattle, pigs, sheep, poultry are also in abundance.

Gwer-West local government is endowed with many natural resources. Some of these include, timber, salt deposit, gypsum and clay which are yet to be exploited to full commercial advantage. Some of the small-scale industrial projects that can be established in the local government area include: rice milling industry, garri processing, poultry farm, block industry (burnt bricks) and saw milling industry. Naka, the administrative headquarters of the local government has been hooked to the national grid. Also, the trunk 'B' road, Makurdi – Adoka – Ankpa, which links the North with the Southern part of the country, passes through the heart of the local government and Naka, the headquarters. This, along with feeder roads in the area facilitate the movement of farm produce to markets in the local government area and outside and provide prospective investors with a good road network for industrial activity. There are some other important settlements in the local government apart from the headquarters, these include; Orawe, Bunaka, Agagbe, Nagi, Aondoana, Kula, Jimba, Anguhar, Atukpu and Ajigba, Ikyande is another popular market in Gwer West Local Government Area.

The sample size in this study was chosen using Taro Yamane formula of Sample size determination. This is expressed as:

$$n = \frac{N}{1 + Ne^2}$$

Where

- n = Sample size
- N = Population size
- e = The error of sample (0.5)
- I = Constant
- N = 165,100
- e = 0.5

n = ?

$$n = \frac{165,100}{1 + 165,100 \times 0.5^2}$$

$$n = \frac{165,100}{165,101 \times 0.25}$$

$$n = \frac{165,100}{41,275.25}$$

$$n = 3.9999 \times 100$$

$$n = \underline{400}$$

The sample size of this study however was 400 respondents. A combination of cluster random sampling and simple random sampling techniques were used in this study. Data was collected using questionnaires and was analysed both qualitatively and quantitatively. The quantitative data was presented in frequency distribution tables. The responses were reported in counts and percentages especially socio-demographic data and other variables. A mixed method (triangulation) approach was employed in analyzing the data.

Data Presentation and Analysis

This section is divided into sections; section A dealt with of such variables like age, sex, education, marital status religion, occupation, income status number of people in household, location and as well ethnic group of respondents.

Socio-Demographic variables of Respondents

This section presents the demographic characteristics of respondents including sex, age, marital status, religious affiliation, level of study, income per annum. The findings are found as summarized in the table below:

Table 1: Socio-Demographic Characteristics of Respondents

Characteristic	Frequency	Percentage (%)
Marital Status		
Single	91	27.7
Married	177	53.9
Divorced	42	12.8
Widow	20	6.1
Total	328	100
Age		
18-24	65	19.4
25-35	92	28
36-45	117	36
45& above	56	16.6
Total	328	100
Level of Education		
Primary	76	23.2
Secondary	138	42.1
Tertiary	99	30.2
None	17	5.2
Total	328	100
Religion		
Christianity	293	89.3
Traditional	37	11.2
Total	328	100
Total	328	100

Source: Field Survey 2020

Table 1 above on socio-demographic variables of respondents shows that, majority of the respondents 47.9% (190) were females while 42.1% (138) of the respondents were males. Also, 91 (27.7%) of the respondents were single, 177 (53.9%) of the respondents were married, 42 (12.8%) were divorced. The implication is that, married respondents took more part in this study. 65 (19.4%) of the respondents were between 18-24 years, 92 (28%) of the respondents were between 25 -35 years, 117 (36%) were between 36-45 years while 56 (16.6%) of the respondents were from 40 years and above. The implication is that, majority of the respondents that took more part in the study were those whose ages were between 36 -45.

With regards to educational attainment of respondents, 76 (23.2%) attained primary education, 138 (42.1%) attained secondary level of education, 99 (30.2%) had tertiary education, while 17 (5.2%) had no education at all. The implication of this analysis is that, majority of the respondents had attained secondary education, this is because, they area visited was a rural one with more secondary schools than tertiary institutions. 293 (89%) of the respondents were Christians, 21 (6.4%) were Muslims, 37 (11.2%) of the respondents were traditional worshippers. The implication is that, respondents who were Christians took more part in the study, this is because the study area was predominantly a Christian one.

The nature and rate of cassava production among rural women farmers in Gwer West Local Government Area, Benue State

This section of the study examined the rate of cassava production among rural women farmers in Gwer West LGA, Benue State, the findings are presented below:

Table 2: Distribution of Respondents according to the Size of farm

Variable	Frequency	Percentage (%)
Less than a hectare	203	61.8
One - Two hectares	57	17.4
Three-five hectares	18	5.5
Six hectares above	50	15.2
Total	328	100

Source: Filed Survey, 2020

Data on the above table revealed that, majority of the farmers in Gwer West LGA cultivated below a hectare of farm, 17.4% (57) of the respondents used one two hectares of land, 5.5% (18) of the respondents used between three to five hectares of farm land while 15.2% (50) of the respondents used six hectares of land and above for their productions. This implies that, majority of the farmers in Gwer West LGA cultivated a small scale production of cassava.

Table 3: Distribution of Respondents according to quantity produced per annum

Variables	Frequency	Percentage (%)
1-5 bags	76	23.2
6-10 bags	136	41.4
11-15 bags	99	30.2
16 bags and above	17	5.2
Total	328	100%

Source: Filed Survey, 2020

Data on the table above revealed that, 23.2% (76) of the respondents produced between one to five bags of the crops, 41.4% (136) of the respondents reported that they produced between six to ten bags annually, 30.2% (99) of the respondents reported that they produced eleven to fifteen bags while 5.2% (17) of the respondents reported that they produced 11 bags and above annually. This showed that, majority of the respondents produced between sixteen bags and above in Gwer West LGA.

Table 4: Distribution of Respondents according to the Source of labour

Variable	Frequency	Percentage (%)
Family labour	51	15.5
Hired labour	109	33.2
Communal labour	168	51.2
Total	328	100

Source: Field Survey, 2020

Data on the table above showed that, 51.2% (168) of the respondents reported that they used communal labour to do their farm works, 33.2% (109) of the respondents reported that they used hired labours for their farms while only 15.5% (51) of the respondents used family labour for their farming activities.

Table 5: Distribution of Respondents according to source of farm land

Variables	Frequency	Percentage (%)
Hired Land	109	45.8
Borrowed land	91	27.7
Family land	71	21.6
Personal land acquired through inheritance	20	6.1
Gifted land	37	11.3
Total	328	100%

Source: Filed Survey, 2020

Data on the above table showed that, 45.8% (109) of the respondents reported that they acquired their land through hire, 27.7% (91) of the respondents reported that acquired their land by borrowing, 21.6% (71) of the respondents reported that they used their family land, 6.1% (20) of the respondents used their personal land acquired through inheritance, 11.3% (37) of the respondents reported that they got their land through gifts from other people.

Products of cassava processing among farmers in Gwer West Local Government Area, Benue State

The section below examined the methods of cassava processing among rural farmers in Gwer West Local Government Area, Benue State

Table 6: Distribution according to the products methods of cassava processing

Variable	Frequency	Percentage (%)
Akpu	48	38.4
Gari	18	14.4
Floor	46	36.8
Chips	13	10.4
Total	125	100%

Source: Filed Survey, 2020

Data on table 4 showed that, 38.4% (48) of the respondents were into production of akpu, 14.4% (18) of the respondents were into gari production; 36.8% (46) of the respondents were into production of floor while only 10.4% (13) of the farmers were involved production of chips. From the findings above, it was concluded that, gari and akpu were the major methods of cassava production in Gwer West Local Government Area. Findings from the study reviewed that variety of cassava processing forms in Gwer West L.G.A. The responses below as attested by one of the key informant in Agagbe aged 41 showed that.

We process cassava in many ways, we make garri, and akpu from it. We process it manually using our knives to peel and our pots to sock them (KII, 2020).

Another key informant aged 32 years in Nagi reported that:

We peel and suck and dry them for cassava flour. We also make garri and akpu from it.

The responses above show that the predominant form of processing in the traditional/manual method of peeling with knives, sucking and drying.

The processing of cassava varies with the product being made. Findings in the previous section revealed that cassava was processed into three major products which include garri, akpu and flour. The main stages of the processing will be discussed in this section.

The processing of garri is a value chain of activities which include peeling, washing, grating and squeezing, sieving, roasting and drying, and packaging, peeling of cassava is manually done with the use of knives. Respondents in the courses of the interview stated that

peeling was done by the female members of the family, it could sometimes take them the whole day. While the peeling is going on water has to be fetched from the stream for washing. If washing is not properly done, it will result in garri that has sand and dirty. Women make many trips to the stream to fetch water for this stage of processing the peeled cassava are then washed and taken to the local mill for grating, squeezing and drying. An amount of money is paid to the operators of the mill depending on the quality of the cassava. This process takes two to three days. After this the garri is roasted using firewood. This has to be done with full concentration as the women have to sit controlling by the fire until the garri is thoroughly fried (KII, 2020).

Some of the traditional technologies utilized in processing cassava by the processors in the study area. The traditional technologies utilized include: kitchen knife for peeling cassava, local calabash bowl for washing, covering of grated cassava cloth or nylon bag for fermentation, using kitchen knife or cutlass for chopping cassava, uses of heavy stones for dewatering, cast Iron pan over wood fire for frying, weaving

basket for sieving, sun drying products on platform or road sides and use of local jute bag for bagging product.

This finding is in agreement with the report of a study conducted by FAO (1999) which identified some of the major traditional materials utilized in cassava processing in Nigeria to include: kitchen knife for peeling cassava, cutlass for chopping, heavy stones for dewatering and sun drying among others.

The contribution of cassava production to the socio-economic status of rural farmers in Gwer West LGA, Benue State

This section examines the contribution of cassava to the socio-economic status of rural farmers in Gwer West LGA, Benue State

Table 7: Distribution of Respondents according to the impact of cassava on the socio-economic status of farmers in Gwer West LGA

Variable	Frequency	Percentage (%)
It assists in payment of children school fees.	54	16.5
Helps to clothe my family	57	17.0
It provide money to do other businesses	50	15.2
It helps to provide food for my family	61	18.6
It improves living standard	18	5.5
It assists to take care of my medical needs	47	14.3
It makes farmers to be self reliance	41	12.5
Your variables should not be sentences		
Total	328	100%

Source: Filed Survey, 2020

Data on the table above revealed that, 16.5% (54) of the respondents reported that, agriculture assisted farmers in paying their children school fees, 17.0% (57) of the respondents reported that it helped them to clothe their families, 15.2% (50) of then respondents reported that it provide them with money to do other businesses, 18.6% (61) of the respondents reported that it helped to provide food for their families, 5.5% (18) of the respondents said that it improves their standard of living, 14.3% (47) of the respondents reported it assists in taking of their medical needs while 12.5% (41) of the respondents reported that it makes farmers to be self reliance.

This is too brief. What indices have you used to measure socio-economic status

Challenges of cassava production and processing in Gwer West LGA, Benue State

This section dealt with challenges militating against effective cassava production and processing in Gwer West LGA, Benue State.

Table 8: Distribution of Respondents according to the challenges faced by farmers in Gwer West LGA

Variable	Frequency	Percentage (%)
Unstable market prices	43	13.1
Lack of Storage Facilities	21	6.4
Lack of land ownership right	26	7.9
Shortage of labour	24	7.3
Inadequate access to farm implements	16	4.9
Attacks by the Fulani	101	30.8
Poor market facilities	71	21.6
Massive post harvest losses	26	7.9
Total	328	100%

Source: Filed Survey, 2020

Data on the table above revealed the challenges of farmers agriculture in Gwer West LGA. The findings revealed that, 30.8% (101) of the respondents reported that herders' attack was the major challenge they faced in agriculture, 21.6% (71) of the respondents reported that poor markets prices was the major challenge they faced, 13.1% (43) of the respondents reported that they were faced with the challenge of accessing stable prices, 7.9% (24) of the respondents reported that they were faced with the challenge of lack of land ownership right, 7.3% (24) of the respondents reported that they were faced with the challenge of shortage of labour, 6.4% (21) of the respondents reported that they were faced with challenge of storage facilities while 4.9% (16) of the respondents reported that they were faced with challenge of inadequate access to farm implement. From the above it was inferred that the challenges of farmers in agriculture production were herders' attacks, poor markets prices, inaccessibility of credit facilities, lack of land ownership right, shortage of labour, storage facilities and inadequate access to farm implement.

An interview with one the key informant age 44 in Mbapupuu showed that

Cassava tubers can start showing the sign of spoilage right from the field if planted in water log fields. When there is too much rain fall, we experience cassava spoilage as a result of the rain (KII, 2020).

Another key informant in Naka aged 33 years old has this to say:

We do not have good storage facilities for garri and akpu. The storage methods and the facilities for the storage too become a serious challenge. As a result, we have no choice rather than to sell our products even if we are not ready to sell them (KII, 2020).

Another key informant in Aondoana aged 43 years old has this to say:

My major problem is poor prices of our products. The amount of money we sell our products is not equivocal to the labour and the inputs involved in producing and processing either garri, akpu or chips. In the previous years, after serious labour and suffering, we hardly have people to even buy our floor. I remember very well one year, people in my community were using floor as manure, some used it to kill the stubborn trees in their farm lands because there were nobody to buy it. So, that is what we are facing here now (KII, 2020).

Another key informant in Nagi aged 34 years old has this to say:

Upon the outset of conflict, farmers become physically incapacitated and cannot engage actively in active farming activities, usually, most people are driven away out of fear from their homes, being displaced and apparently living under intense fear, engagement in agricultural production becomes difficult leading unavoidably to low rate of agricultural production and subsequent output (KII, 2020).

Discussion of Findings

The study examined factors affecting cassava production and processing among rural farmers in Gwer West LGA, Benue State. However, few farmers in Gwer west produced cassava majorly for commercial purpose-who did it in relatively large scale. This is because, cassava was seen to be one of the major crops grown in the area. The findings here were in line with that of Nuhu, Donye & Bawa (2014) who found that in Nigeria, both female and men farmers produce cassava, but it is widely accepted that, most of the production are done by men while processing are done by women.

The source of labour in Gwer West showed that, majority of the respondents (51.2%) of the respondents reported that they used communal labour for their cassava farm works, others used hired labours and family labour for their farming activities. Communal farming was practiced in Gwer West. Here farmers organized themselves and work on people's farm on rotational basis. On the basis of farm land, majority of the farmers had small farm size which was less than one hectare. When small farm land is involved, the production is likely to be low and subsequently low income.

On the impact of cassava on the socio-economic status of farmers, the study found that Data on the table above revealed that, agriculture assisted farmers in paying their children school fees. Some of the farmers were bread winners in their households so, they resorted to agriculture as a sole means of income.

Therefore, children from such families got their school sponsorship from agriculture. It also helped them to clothe their families. Also it provided farmers with money to do other businesses, it also helped farmers to provide food for their families, improves their standard of living, assisted in taking of their medical needs and made farmers to be self reliance. The findings here are in line with Ladele (1994), who observes that farmers are more likely to participate in activities that are designed to meet their needs and improve their living conditions. A study by reported that farmers participated in because it helped them to acquire more skills on agriculture in addition to providing support services.

The challenges confronting casaava production in Gwer West were herders' attacks, poor markets prices, inaccessibility of credit facilities, lack of land ownership right, shortage of labour, storage facilities and inadequate access to farm implement. However farmers were faced with challenges such as the capital-intensive nature of the ventures, socio-cultural factors or gender-related issues. Farmers in developing countries face limited access to credit and certain other resources which hamper their involvement in agriculture (Ani, 2004). This inference is in consonance with the findings of Aribosola (2000). Ani (2004) asserts that without credit women are less likely to afford production factors such as inputs, labour and storage facilities. This could inhibit the effective participation of women in agricultural production activities. Lack of proper education and access to extension services are also inhibiting factors to effective participation in agrarian activities. This is in agreement with Ani (2006) who reported that farmers' education generally has been found to enhance production among farmers, apparently resulting from their efficiency in using new production techniques.

Conclusion/ Recommendations

From this study, it was found that most of the respondents experienced in the production and processing of garri. Cassava production in the area was high while processing of cassava into garri and pellets were still being carried out using traditional technologies. The major challenges of the cassava processors include: high cost of processing inputs, high cost of transportation, poor storage facilities and techniques, fluctuation in price of processed cassava products and poor road network for transporting fresh and processed cassava products among others. Based on the findings and conclusions drawn from this study, the following recommendations are made:

1. There should be a provision of credit facilities to women cassava farmers in order to boost their agricultural activities in Gwer West and beyond.
2. Women cassava farmers should formation local bams and credit saving associations to enable them expand on the size of cassava farming.
3. The government should enhance of security as well as the increase of women's access to land , to enable them carry out farm activities, effectively without attacks by the cattle rearers.
4. Farmers should use modern farming techniques in order to ensure bountiful production and processing of cassava.
5. Efforts should be made by technology developers in making new processing technologies and devices as close as possible to the existing traditional ones. This will facilitate acceptability.
6. The income of the processors was significantly and statistically affected by their socio-economic characteristics, therefore there should be capacity building for the processors to improve their social and wellbeing for profitable cassava processing in the area.

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