CAUSES OF POST-HARVEST LOSSES OF GROUNDNUT AMONG FARMERS IN BENUE STATE, NIGERIA

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Abstract

This study examines the causes of post-harvest losses of groundnut (Arachis hypogaea L.) among farmers in Benue State, Nigeria. A multistage sampling technique was used to select 384 respondents, and data were obtained through questionnaires and focus group discussions. Data collected quantitatively were analyzed using descriptive statistics such as frequencies, percentages and pie charts while qualitative data collected were analyzed using content analysis. Results revealed that the leading causes of post-harvest losses were: consumption and contamination by birds and rodents; lack of storage facilities; and hindrances caused by traders. Other major causes included: poor transport facilities; poor harvesting practices; and unavailability of processing facilities. Socio-demographic data showed that the majority of farmers were women (67%) within the productive age range of 31–40 years. The study concludes that post-harvest losses significantly undermine groundnut production and profitability in Benue State, Nigeria. Thus, the study recommends targeted investments in storage, transport infrastructure, markets, and processing technologies, alongside policy support to enhance farmers' resilience and food security in Benue State.

Keywords: Farmers, groundnut, storage, post-harvest, markets, processing

Introduction

Groundnut (Arachis hypogaea L.) originated in South America. Groundnut is also known as peanut and it is ranked 6th crop among the oilseed crop and the 13th food crop of the world. It is a legume crop with several nutritional benefits. It contains vitamins E, K and B, folacin, calcium, phosphorus, magnesium, zinc, iron, riboflavin and potassium (Ingale et al.,

2011; Rami et al., 2014; Bello et al., 2019; Dalla et al., 2020). Terrain et al., (2017), highlighted that groundnut has several importance, that it serves as a food and nutrition security and income generation. Groundnut provides high quality edible oil, used for cooking, making margarine/salads, and it is a digestible protein between 26% and 28% of total groundnut mass. Oils and solvents from groundnut are used in producing medicines, textiles, cosmetics, nitroglycerine, plastics, dyes, paints, varnishes, lubricating oils, leather dressing, furniture polish, insecticides and soap (Mugisha et al., 2014).

According to Consultative Group for International Agricultural Research (CGIAR, 2013), groundnut provides half of the essential vitamins for human growth and tissue maintenance, fats, protein, carbohydrates and high quality fodder for animals. Groundnut is a multi-purpose crop and it is an excellent cash crop for both domestic markets and foreign trade to generate foreign exchange (Audu et al. 2017). According to Pocketbook FAOSTAT (2015), world groundnut production stood at 42.8milliom tons 2013 with Asia (67.1%) and Africa (24.6%). Nigeria ranks third among groundnut producing nations just after China and India, with a production of 4.45 million metric tons. The country contributes 10% of global production and 39% in Africa (Ajeigbe, 2014; FAOSTAT, 2019). Nigeria is the highest producer in Africa with an annual production of 2,420,000 metric tons in 2018 followed by Sudan (FAO, 2019). Its mean output from farmers' fields for groundnut-producing states in Nigeria was 230.62 tons. Niger State has the highest output of 546.62 tons, Kano State with 526.94 tons, Benue State with 309 tons, Kaduna State 297.51 tons, and Bauchi State with 262.38 tons. Taraba State with 197.86 tons, Nasarawa State with 127.57 tons, Adamawa State with 121.86 tons, Plateau State with 67.76 tons, Kwara State with 51.39 tons, and Kogi State with 28 tons (Merem, et al., 2021).

Post-harvest stages include, harvesting, drying, threshing/shelling, cleaning, storage, transportation, packaging, and marketing (Sandeep et al., 2024). Post-harvest losses are described by Usman (2000) as the reduction in the amount of food (in quality and quantity) available for consumption. Post-harvest losses reduce the nutritional value and changes the taste, colour, texture or cosmetic features of the crops. Post-harvest losses of groundnut results in the reduction of quantity harvested by farmers. This discourages the cultivation of groundnut on a large scale. Post-harvest losses of crop are one of the major problems facing farmers, it starts from the point of harvest to the point of consumption. Post-harvest losses of groundnut affect the well-being of groundnut farmers. Groundnut is a pillar of food security, income, medicine, and employment generation; its production has not been given the utmost attention in the groundnut production zones leading to losses (Verter et al., 2014). Despite groundnuts economic importance, a significant portion

of groundnut harvested is lost due to poor post-harvest handling. In Benue state according to, Merem et al., (2021) groundnut production rate has not been consistent from 2006 to date due to post-harvest losses, its decline level ranges from over 15-16% to -10.58%. This paper intends to cover the causes and suggest ways to curtail post-harvest losses of groundnut.

Groundnut Farming in Nigeria

Groundnut (Arachis hypogaea L.) is an annual legume derived from two Greek words, Arachis meaning legume and hypogaea meaning below ground (Bashiru et al., 2023). It is one of the most popular and universal crops cultivated in more than 100 countries of the world (Ayanwale et al., 2020). The term groundnut refers to the pods with seeds that mature underground. It belongs to the leguminous family, which includes peas, soybeans, lentils, and beans, and is not related to tree nuts such as walnuts or cashews (Habtamu et al., 2023). Groundnut thrives in sandy and loamy soils with good drainage. Heavy clay is unsuitable as it traps pod development. Deep, well-drained soils with a pH of 6.5–7.0 and high fertility are ideal. Where soils are acidic, farmers apply lime during land preparation. Optimal soil temperature for germination and growth ranges from 24°C to 30°C, with evenly distributed annual rainfall of 450–1250 mm being suitable (Vabi et al., 2019).

Post-harvest losses are both quantitative and qualitative food losses and occur at every stage of the supply chain such as harvesting, handling, storage, processing, packaging, transportation, and marketing (Angera et al., 2020, cited in Merem et al., 2021). Post-harvest losses, according to Ekhuemelo et al., (2020), are the degradation in both quantity and quality of food production from harvest to consumption or other end uses. Quality losses include those that affect the nutrient and caloric composition, acceptability, and edibility of a given product and are more common in developed countries, whereas quantity losses result in the reduction of the amount of product, which is more prevalent in developing countries. Post-harvest losses are further described by Augustine et al. (2024) as the reduction in the amount of food (in quality and quantity) available for consumption.

The causes of post-harvest losses of groundnut are multifaceted, involving climatic, biological, and human factors (Habtamu et al., 2023). Inappropriate harvesting tools and practices often result in pod breakage, injury, and quality deterioration (Bashiru et al., 2023). Groundnut maturity is rarely uniform, making harvesting labor-intensive. Farmers often harvest prematurely, which reduces yield, oil content, and seed vigor, while late harvesting leads to peg weakening, pod loss, and increased aflatoxin contamination (Hakeem et al., 2020). Transportation challenges also

contribute to losses. In Nigeria, poor packaging and inadequate transport facilities, coupled with dilapidated rural roads, lead to damage and moisture loss during marketing (Ahmed et al., 2021). Similarly, poorly regulated markets leave farmers vulnerable to exploitation by middlemen, leading to reduced profit margins (Dallas et al., 2020; Augustine et al., 2024).

Improper drying practices, especially sun drying, expose groundnuts to rodent attack and contamination, while inadequate moisture-proof storage structures encourage mold proliferation and aflatoxin buildup (Habtamu et al., 2023; Bashiru et al., 2024). Farmers often rely on low-cost, makeshift storage that exposes produce to pests, birds, and dampness. High humidity and poor ventilation further exacerbate storage losses (Vabi et al., 2019).

Groundnut processing among rural farmers is still dominated by inefficient local methods, which are labor-intensive and result in product losses. The absence of improved processing technologies limits value addition and income opportunities (Dawa et al., 2024). Studies have also highlighted the risk of mycotoxin contamination in groundnut products. For instance, Uzeh et al. (2021) reported aflatoxin levels exceeding U.S. FDA limits in 90% of sampled peanut cakes ("kulikuli").

Marketing is equally problematic. Groundnuts are sold in unregulated open markets where demand and supply dictate fluctuating prices (Bello et al., 2019). Limited market information weakens farmers' bargaining power (Ahmed et al., 2021). Markets remain imperfect, with price variability across varieties and weak competition (Augustine et al., 2024). During bumper harvests, farmers' inability to handle large volumes leads to glut and losses. For example, in Plateau State, 47% of farmers reported selling groundnuts at low prices to middlemen due to the absence of organized marketing systems (Dallas et al., 2020).

Theoretical Framework

This study is anchored on the Food Security Theory and the Post-Harvest System Framework, both of which provide lenses for analyzing the causes and consequences of post-harvest losses of groundnut in Benue State.

Food Security Theory

Food security exists when all people, at all times, have access to sufficient, safe, and nutritious food to meet dietary needs for an active and healthy life (FAO, 2021). Post-harvest losses directly undermine food security by reducing the quantity and quality of available food, thereby lowering farmers' income and household food access. According to Habtamu et al. (2023), groundnut post-harvest losses contribute to nutrition insecurity due to reduced availability of protein-rich crops and contamination with aflatoxins. Thus, Food Security Theory provides the

basis for understanding how losses in storage, processing, and marketing stages affect both the availability and accessibility dimensions of food security among farming households.

Post-Harvest System Framework

The Post-Harvest System Framework (FAO, 2019) conceptualizes post-harvest management as a chain of interlinked activities from harvesting, drying, storage, processing, transport, and marketing to consumption. Losses may occur at any stage due to poor handling practices, inadequate storage, pest infestation, and weak market infrastructure (Bashiru et al., 2024). This framework highlights the systemic nature of post-harvest losses and suggests that interventions must be holistic addressing not just production but also storage technologies, transport, market access, and value addition. Applying this framework helps to map where and why groundnut farmers in Benue State experience the greatest losses.

The integration of these two theories is relevant because food security theory explains the broader implication of groundnut post-harvest losses on nutrition, income, and livelihood. Post-harvest system framework provides a process-oriented model that identifies the specific stages where losses occur and what interventions are needed. Therefore, the study adopts these frameworks to examine the major causes of groundnut post-harvest losses such as poor storage (97%), pest infestation (96%), and transport constraints (96%) and to recommend practical interventions that will enhance both household food security and farmers' socioeconomic well-being.

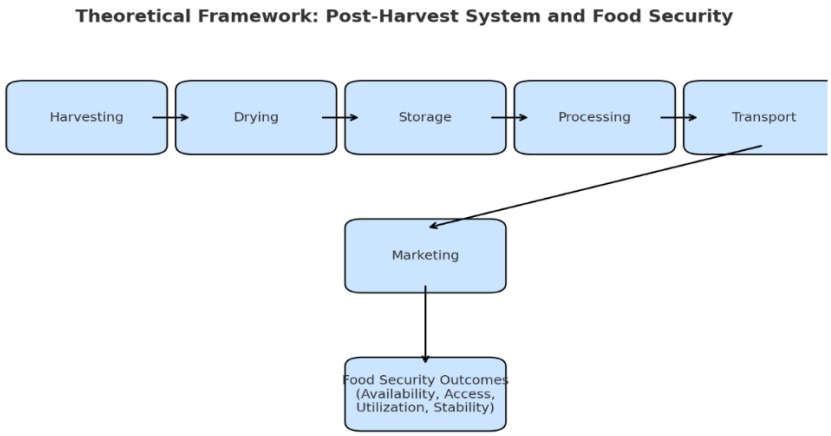


Diagram of the theoretical framework: illustrates how the post-harvest stages (harvesting → drying → storage → processing → transport →

marketing) connect directly to food security outcomes (availability, access, utilization, and stability).

Research Methodology

The study used a cross-sectional survey research design which employed both qualitative and quantitative methods. The population for the study comprises of all the groundnut farmers in the groundnut producing local government areas of Benue State, Nigeria. A multistage sample procedure was employed for the study. A sample size of three hundred and eighty-four respondents were selected using Smith's (2013) formula. The data were subjected to both descriptive and inferential statistical analysis. The descriptive statistics used was presented in frequencies and percentages. Inferential statistics used was presented in chi-square. Data collected for the study is presented in line with the study objectives and the socio-demographic variables of respondents.

Socio-Demographic Variable of respondents

The study collected data on the socio-demographic variables of respondents including gender, age, marital status, level of education, number of years spent in groundnut farming. The data is presented in Table 1 below

Table 1: Socio-Demographic features of Groundnut farmers

Variables	Frequency(360)	Percentage (100%)
Gender		
Male	120	33
Female	240	67
Age		
21-30	48	13
31-40	212	89
41-50	55	15
51 ≤above	45	13
Marital status		
Single	38	11
Married	250	69
Widowed	40	11
Divorced	32	9
Educational status		
Non formal	23	6
Primary	99	28
Secondary	172	48
Tertiary	66	18
Number of years spent in groundnut farming		
1-10years	200	56
11-20years	120	33

21-30 years	32	10
31-40 years	5	1
41years≤above	2	1
Total	**360**	**100**

Source: Field survey, 2024

The result in Table 1 shown above indicated that the majority of the respondents 67% (240) were females, while 33% (120) were males. The result further revealed also that the majority of the respondents in the study area were 59% (212) between ages 31-40years, followed by the age bracket of 41-50 years with a representation of 15%(55), 31%(48) respondents were within the age range of 21-30years. The result in Table 1 showed again that the majority of the respondents, 69% (250) were married, while 11% (40) were widows, 11%(38) were single and 9% (32) were divorced. The data from Table 1 indicated that the majority 48% (172) of the respondents attended secondary school. The result further shows that 28% (99) of the respondents attended primary school, 18% (66) attended tertiary school, and 6% (23) had no formal education. In terms of duration of cultivation, respondents mentioned that 56% (200), had been in groundnut farming for about 1-10 years, those with 11-20years experience, 21-30 years, 31-40 years, and 41 and above constituted 33%(120), 10%(33), 1%(5) and 1%(2) respectively.

Causes of Post-Harvest Losses of Groundnut

This section presented and discussed the causes of post-harvest losses of groundnut in the study area. The causes were presented according to the post-harvest stages where losses occurred as identified by respondents and Focus Group Discussion to buttress the point were followed. Table 2

Table 2: Major causes of post-harvest losses of groundnut along the post-harvest stages

Causes of Post-harvest losses	Frequency (360)	Percentage (%)	Rank
Poor harvesting practices	340	94	5
Activities of birds and rodents	350	97	1
Poor transport facilities	346	96	4
Lack of storage facilities	350	97	1
Unavailable processing facilities	286	79	6
Hindrances of the activities of traders	349	97	3

Sources: Field survey, 2024

Rank in descending order of magnitude

Multiple responses

Table 2, presented data on the multiple responses of respondents on the causes of post-harvest losses of groundnut along the post-harvest stages in the study area.

Lack of Storage Facilities

At the storage stage, 97%(350) of respondents attributed their post-harvest losses to lack of storage facilities. Storage facilities includes storage space and storage materials. Due to space, the farmers sells out some of the groundnut fresh, so as to enable them have space to store the rest and other crops. The issue of storage facilities translates from the unavailable space to dry the desired quantity of groundnut that was harvested, so some are sold fresh. The problem of lack of storage facilities makes it difficult to store the desired number of bags of groundnut for a long period of time, to when the prices appreciates. Most respondents mentioned that they store their groundnut in round-nuts which can only contains 6-10bagds limiting the number of bags that can be stored. Groundnut cannot be piled on each other, it needs to stand upright and with space in between the bags placed on a surface above the ground. The floor of the building is cemented and even at that groundnut are not to be kept having direct contact with the floor. It creates an opportunity for mold growth and contamination. Groundnuts are stored in sacks, pots, drums or rubbers. These storage materials are not efficient in keeping the groundnut safe from fungi infection, from been eaten by rodents/birds, contamination by cockroaches and other insects.

An FGD participants said,

> The room I normally used to store groundnut can only contain 10bags of groundnut at a time, and it is not only groundnut I normally store in that room. Placing groundnut bags on top of each other is not good because it causes the groundnut in the bags below to open (Female FGD Ugbokolo council ward Okpokwu LGA, Jan 2024).

Lack of storage facilities contributes a lot to post-harvest losses of groundnut. According to Sharanappa et al., (2018); Fu et al., (2018); Tell (2011), the appropriate storage material are silos, Purdue improved crop storage (PICS) bags, polyethylene bags, polylined gunny bags, use of desiccant (zeolite bead) and jute. Most of this approved storage materials are not accessible to farmer and even when they are they are expensive for the farmer to afford (jute or drums).

Consumption by Birds, Insects and Rodents

Consumption of the groundnut by birds and rodents when drying was mentioned by 97% (350) of respondents. The type of birds based on description that eat groundnuts are pigeon, pied crow and village weaver.

When drying and the farmer or anybody is not around, to drive away birds, the birds pick up the pods, hit it on the ground and eat up the seeds, while already shelled pods enables the birds to eat up the seeds. The consumption by rats usually occurs when the farmer leaves the groundnut outside to dry till the next day, this enables the rats/rodents to eat, defecate/urinate on the groundnut, and relocate a reasonable number of these groundnut (either shelled or unshelled) to their hide outs, contributing to post-harvest losses of groundnut as explained by the respondents.

An FGD discussants said,

> The consumption of birds and rats when drying this groundnut cannot be quantified especially if we did not measure the groundnut before drying. If the groundnuts are in their pods these birds open the groundnut up and eat the seeds while rats relocate some of the groundnuts to their hideouts. These rats also contaminate the groundnuts, by urinating or excreting on the groundnut and this is not good, it is not good to consume, sometimes you find this excrete inside the groundnut, discouraging traders from buying. This contributes to the losses that we experience' (Female FGD, Uyam council ward, Ukum LGA, Dec 2023).

From the finding, consumption of groundnut by birds and rats contribute to post-harvest losses of groundnut. These birds/rats eat and contaminates the groundnut.

Hindrances of the Activities of Traders

Hindrances of the activities of traders were mentioned by 97% (349) respondents a cause post-harvest losses of groundnut. Traders play a significant role in the supply chain hence contributes to post-harvest losses of groundnut. Traders often offer low prices especially when farmer bargaining power or access to alternative market. These trader delay purchase and during these delays groundnut are exposed to moisture, pest and mold attack leading to aflatoxin contamination and reduces quality. Some traders buy low quality and high quality groundnut and mix them reducing the market value and discouraging farmers from maintaining a quality standard of post-harvest handling.

An FGD participant said

> These traders sometimes causes us a lot of harm. These traders exploit us by offering us low price for our groundnuts. Most times we have to follow what they want if we really want to sell. These traders insists on the type of groundnut to plant (there usually prefer BNARDA specie). So if you do not plant that type and you bring to the market the other type of groundnut(*Gewanda*), you might not get buyer (Female FGD Uyam council ward, Ukum LGA, Dec 2023).

Another FGD discussant said

> These traders in conjunction with this ticket guys set rules such as who can sell and the price and sometimes insist we sell to middlemen (*balanda)* these people take a large share of the profit we are to make and this discourages farming but we do not have a choice (Female FGD, Mbaakura council ward, Bururku LGA Nov 2023).

Hindrances of the activities of traders causes post-harvest losses of groundnut because they determine the sale and discourages the farmers from selling at first instance causing the farmer losses.

Poor Transport Facilities

During the transportation stage, 96%(346) of respondents mentioned poor transport facilities as a cause of post-harvest losses of groundnuts. Method of groundnut transportation were revealed and discussed by respondents across the study area as viz head, use of wheelbarrow, carrying on the shoulder and the use of bicycles. This implies that groundnut transportation in the study area was carried out mostly manually which contributes to post-harvest losses as these means could barely protect the groundnut from breakage and spillage. Freshly harvested groundnut are heavy particularly if the sand/mud on them has not been washed off. The groundnuts are conveyed in bits thereby exposing the ones left on the farm to theft and harsh weather and even likely been eaten by rodents/birds leading to post-harvest losses of the groundnuts.

An FGD discussant said that;

> …the means of transporting these groundnuts is usually a challenge because the roads are not motorable. If the roads are motorable we can use vehicles (lorries or trucks) straight to the farms to convey these groundnuts. We end up conveying them bit by bit on our heads, use of bicycles or with the use of wheelbarrows to our homes (Female FGD, Saghev/Ukusu council ward Gwer-west LGA, Dec 2023).

Post-harvest losses occur as a result of poor transportation facilities it makes moving of groundnut from the farm to the store or market difficult. In accordance to poor transportation facilities FAO (2016) and Rwubatse et al., (2018), reported that the use of shoulder, head, wheelbarrow and bicycles to transport groundnut to the sale point causes breakage and spillage as such results to post-harvest losses.

Poor Harvesting Practices

The harvesting practices used by farmers were poor as mentioned by 94%(340). The practice of using of hands to pull out the groundnut was common among the respondents while a few used hoes to dig out the groundnut from the ground. This practice contributes to the losses of

groundnut as this practice causes some pods to be stuck to the ground due to forceful pulling of the haulm during harvest. Thereby reducing the quantity of the groundnut harvested. Farmers that use hoe to dig out the groundnut causes injure to the pod, particularly if the farmers intend not to sell the groundnut immediately, this therefore exposes the groundnut to fungi attack. This practice reduces the quantity and quality of groundnut gotten by farmers.

In the same vein, one FGD participant reported that;

> …the groundnut stuck to the ground, it is not all that we are able to harvest even if we use hoe or cutlass to dig around it. The subsequent year, most of these groundnut germinates, but because we need to cultivate the soil before we plant, we still pull out the groundnut. And at this point the groundnut are still not of use to us (Female FGD, Ikyurav-tiev 1 council ward, Kastina-Ala LGA, Nov 2023).

The technique used in harvesting groundnut affects the quantity that the farmer gets thereby reducing the income to be gotten from the cultivation of groundnut. In the same vein Nautiyal, (2002), attributed to losses of groundnut at the harvesting stage as the result of poor harvesting techniques.

Unavailable Processing Facilities

Unavailable processing facilities were mentioned by 79%(286) respondents. The most common commercial products of groundnut in the study area was fried peanut which are sold at the market places or hawked on the streets. Processing of groundnut is a source of income and employment to a large proportion of rural farmers. But due to the unavailability of processing facilities this is not realized. Groundnut processing using the traditional methods is not efficient due to its tremendous losses during processing, time consuming and high labour inputs. These problem persists due to the lack of appropriate post-harvest facilities. It was explained that the knowledge of groundnut processing was not well known due to limited access to training and extension services and low awareness of value addition to groundnut like making of snacks (peanut made with flour and sweet). The farmers that were knowledgeable in processing groundnut produce in low quantity, the rudimentary method of processing leads to losses especially during frying as some of the groundnuts gets burnt. It makes extracting of oil very difficult, it also affects the taste of the oil and butter produced. It leads to rejection at the market. Some respondents explained that they normally use rotten groundnut to process this butter or oil and this in turn affects the quality of the butter or oil exposing the bye product to easy contamination by aflatoxin.

FGD discussant said;

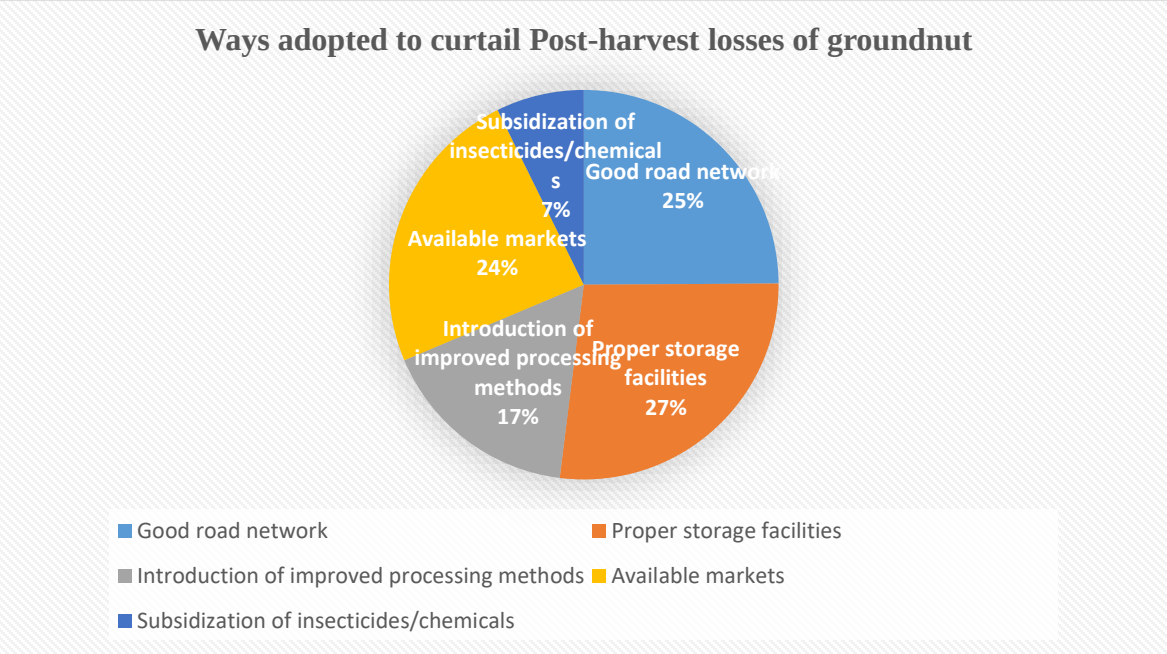
> ...There are no machines to enable us to grind the groundnut in large quantities, so we just process small quantities of groundnut into butter to be used to eat garden eggs. (Female FGD, Owo council ward, Oju LGA, Dec 2023).

Another FGD discussant said

> If you notice most times we use groundnuts that have gone bad to produce either oil or butter (used to eat garden egg). We have discovered that the oil/butter tastes somehow. But if the good ones are mixed with the bad ones the taste is usually better so we do that most times. The knowledge of processing groundnut oil is not well known, so we had to learn from those that know for a token. Groundnut processing locally is not easy, if decide to use grinding machine is usually easier but not all grinder use to allow us sometimes so we result to using grinding stone. You cannot grind with grinding stone plenty groundnut at a time therefore discouraging processing of groundnut (Female FGD, Ugbokolo council ward, Okpokwu LGA ,Jan 2024).

Transformation of groundnut through processing would change the overall economic development of farmers through income and employment generation.

Figure 1: Ways adopted to curtail the causes of Post-harvest losses of groundnut



Source: Field Survey, 2024

Figure 1 presents the responses of respondents on suggested ways to curtail post-harvest losses of groundnut in the study area. Proper storage facilities had the highest ranking with 27%. The respondents mentioned that proper storage facilities should be provided for rent and such buildings should be situated at central places or the marketplace for easy access. This will handle the issue of poor storage facilities.

It was emphasized by an FGD discussant, he said that,

> If storage facilities are provided either by government or agricultural institutions whether for free or for rent, this will go a long way to help tackle this problem of storage. Because these storage outlets will be properly built, secured, and ventilated… (Male FGD, Saghev/ukusu council ward, Gwer-west LGA, Dec 2023).

Subsidization of insecticides/chemicals would help reduce post-harvest losses of groundnut mentioned by 7%. The government should provide subsidized agrochemical stores in rural areas to help curtail the hike in prices of chemicals/insecticides. This will reduce the cost of chemicals/insecticides and make it easier for the farmers to have access to these chemicals usually at the storage stage.

An FGD participant said

> The hike in process of chemicals to control pests/insects is a challenge to us. It is not just about the high price but the issue of the sale of fake chemical. If the organization in charge of ensuring the quality of chemical can come to our markets and catch this people it will help us. Also if the government can reduce the price of the chemical for us it will go a long way in reducing our expenses and our losses too. (Female FGD Owo council ward Oju LGA, Dec 2023).

Good road network was mentioned by 25% of respondents. Also, encouraged buyers to follow the farmers to their farms to buy these groundnuts there. This will also encourage other farmers to cultivate groundnut knowing it is a profitable crop.

An FGD participant said that,

> If the government can atleast grade the major roads leading to our farms, it will help reduce the difficulty (trekking long distances) will experience while transporting our product (Male FGD Ikyurav-tiev 1 council ward, Katina-ala LGA, Nov 2023).

The issue of available market was mentioned by 24% respondents as affecting the sale of groundnut, it will be reduced if the government provided more market. This will help reduce the losses incurred at the marketing stage, particularly when they get to the market and have to look for buyers for the groundnut.

An FGD discussant said that

> If the market days can be reduced from 5 days to at least 3days interval it will really help us sell our produce not only groundnut, than having to wait a whole 5days before the next market day. Also if the government or committed organizations ca help us reduce the activities(bullying) of this ticket sellers or middle men. It will help us sell our groundnut on time and at the price that we want to sell (Female FGD, Uyam council ward Ukum LGA, Dec 2023).

While 17% of the respondents suggested that the introduction of improved processing methods will help reduce post-harvest losses of groundnut at the processing stage. Most of the processing methods are local and as such expose the by-product to fungi contamination and even rejection at local and international markets.

An FGD participant reported that

> Processing machines that will help improve our method of processing groundnut should be subsidized, o that we can afford it. If these machines are affordable, it will encourage more farmers to go into processing by adding more value to our groundnut instead of selling it dried or fresh form (Female FGD Mbaakura council ward, Buruku LGA Nov 2023).

If modern processing methods are being introduced, it will encourage existing groundnut farmers and new groundnut farmers to cultivate groundnut on a large scale.

Conclusion and Recommendations

The result of the study shows that females are more engaged in groundnut farming than men. The farmers in the study area are in their active age and literate. Groundnut farming in the area is carried out on a small scale and it is profitable. The problems that were found to cause post-harvest losses of groundnut were: lack of storage facilities, contamination of birds, insects/rodents, hindrances of the activities of traders, poor transport facilities, poor harvesting practices, unavailable processing facilities.

Based on the causes identified, the finding will help policy makers find ways of ameliorating farmers for increased groundnut production, hence it will make groundnut cultivation more profitable to groundnut farmers in the study area and the state at large. The state /local government or stakeholders should improve the markets to encourage the export of groundnuts. Farmers should cultivate the habit of using the appropriate storage materials like drums, silos and sacks.

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