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ANALYSIS OF RISKS AND CONSTRAINTS FACED BY CASHEW FARMERS IN OGBOMOSHO, OYO STATE, NIGERIA

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Abstract

Research has focused on cashew production, profitability, and marketing. However, the risks and constraints faced by cashew farmers have yet to receive sufficient attention. Hence, this study was conducted to examine the risks and constraints faced by cashew farmers and the management techniques adopted to curtail these challenges in Ogbomosho, Oyo state, Nigeria. The data for this study was gathered from 120 cashew farmers who were randomly selected via a two-stage sampling procedure. The study used descriptive statistics to examine the socio-economic characteristics of the respondents and to profile the risks and constraints management strategies adopted by the cashew farmers. Index ranking was used to analyze the various risks and challenges faced by cashew farmers. As major risks faced by cashew farmers were price fluctuation, theft, and adverse weather conditions, while the most pressing constraints were poor access to extension services and inadequate access to storage facilities. Enterprise diversification, off-farm income, insurance, and contractual farming arrangements were the major risk management strategies adopted by the cashew farmers. Policies that would aid the stabilization of cashew prices should be put in place. More so, extension services should be made available to cashew farmers alongside the provision of stress-tolerant cashew cultivars.

Key words: Risks, constraints, risk management, cashew production, cashew farmers.

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Introduction

Cashew (*Anacardium occidentale*) farming is crucial to Nigeria's agricultural sector, making a significant economic contribution and supporting the livelihoods of numerous farmers (Eze et al., 2023). For many farming households, cashews have grown to be a very important agricultural product. The importance of cashews, particularly the nut, in Nigeria cannot be overstated, as their yield has a substantial impact on the nation's GDP, public revenues, and foreign trade (Oluyole et al., 2015).

Cashew is grown in several parts of Nigeria, while the Kogi, Oyo, Enugu, Osun, and Anambra are the major producing states (Agboola Adedaja et al., 2022). Aside from being the main source of revenue for many farmers, it is also a major export sector of the country. Cashew exports contribute about 8% of Nigeria's non-oil export revenue (Esan et al., 2018). This fact is further corroborated by Ogunwolu et al. (2020), who find that cashews contributed between 25 million to 35 million USD from 2010 to 2014. This fact has been rose to 342 million USD in 2017, but declined to 119 million USD in 2019. The value of cashew nuts exported from Nigeria is gradually appreciating recently, as it rose to 156 million USD in 2021 (Statista, 2023). This makes cashew nut export to be the leading agricultural export product in Nigeria, as of the second quarter of 2022 (NBS, 2022).

More so, according to Adeigbe et al. (2015), Nigeria is a leading producer of good quality cashew nuts, second only to Vietnam and closely followed by India, Cote d'Ivoire, and the Philippines. Therefore, this crop needs to be given high priority, given its importance as a raw material for the local industries, as well as an export commodity (Oladejo, 2015).

Cashew remains one of the most important export crops in the Western region of Africa (Ricaud, 2019). With a consistent market share of 45%, since 2015, the region has emerged as a significant player in the global cashew market (Monteiro et al., 2017). As demonstrated by the enormous increase in cashew production from 400,000 MT to approximately 1,800,000 MT between 1961 and 2016 (ACA, 2016), West Africa is dominating both the existing and emerging cashew markets. Cashew is seen as an auspicious weapon for poverty reduction in Africa, and a source of hope for many people due to its critical role in supporting the livelihoods of numerous small-scale farmers, while contributing to national income (Keller, 2010; Sanyang, Kuyateh, 2018).

However, from a sustainable agricultural perspective, the economic potential of cashews is not fully maximized. This is largely because cashew farmers are perpetually faced with lots of risks and constraints in cashew production thus impacting the

productivity, marketing, and availability of cashews. Cashew farmers face various risks that could significantly impact their agricultural activities and overall farm profitability (Monteiro et al., 2017).

These risks include unpredictable weather patterns, pests and diseases, market fluctuations, price volatilities, etc. (Singla, Sagar 2012; Sarwar, Saeed, 2013; Wauters et al., 2014; Catarino et al., 2015; Ahmad et al., 2019).

Monteiro et al. (2015) reported that the effective management of risks is crucial for the sustainability and success of cashew farming operations. Risk and constraint management strategies are implemented to identify, assess, and mitigate potential risks, enhancing the farmers' ability to cope with adverse events and protect their investments.

While many researchers (Oluyole et al., 2015; Oladejo, 2015; Salau et al., 2018; Agada, Sule, 2020) have investigated cashew production, profitability, marketing, and constraints, respectively, there is yet paucity of knowledge as regards the risks facing cashew farmers and the constraint management techniques adopted by cashew farmers. Therefore, it becomes imperative to identify these challenges and management techniques that could minimize their impact on cashew production.

Understanding the risk management strategies applied by cashew farmers is crucial for developing appropriate policies, interventions, and support systems to enhance the resilience and profitability of the cashew industry. Thus, the objectives of this research are as follows:

- a) To identify the socio-economic characteristics of cashew farmers in Ogbomosho, Oyo State;
- b) To categorize the various risks and constraints faced by cashew farmers in Ogbomosho, Oyo State; and
- c) To analyze the risk and constraints management strategies adopted by cashew farmers in Ogbomosho, Oyo State.

Methodology

Study area

The research was carried out in Ogbomosho, Oyo State, Nigeria. This region is the most predominant zone for cashew production. Ogbomosho is in the southwestern part of Nigeria. Focusing to specific geographical area, the study provides valuable insights into the risk management practices employed by cashew farmers in a high-potential cashew-growing region.

Ogbomosho is a pre-colonial urban hub and Oyo State is the second-largest metropolis in terms of both population and area. The city lies roughly 80 km from Ilorin and Osogbo, the capital cities of Kwara and Osun State respectively, and 100 km from Ibadan, the capital of Oyo State.

Data collection and sampling methods

This study relied on cross-sectional data sets from cashew farmers in Ogbomosho, Oyo State, Nigeria. Data were gathered through the carefully designed questionnaire to obtain vital information from the target population. The mode of inclusion of respondents in the study implies that they are all cashew farmers, regardless of whether they cultivate other crops or not. Nevertheless, the findings of this study focused strictly on cashew production, leaving aside other farming potentials that may be owned by the respondents. The study was conducted in the Ogbomosho metropolis, using a snow-balling technique. A total of 120 cashew farmers were interviewed. Participation in the research by respondents was entirely voluntary. Above all, it was asked for oral consent from all respondents before interviewing them. Data collection for the study was performed in period August-September 2022. As at that time, there was no access to the list of registered cashew farmers in Ogbomosho, it was impossible to use the sample size calculator. Hence, research was relied upon a random sampling, after consulting similar studies.

Analytical tools

Descriptive analysis

Performed analysis involves descriptive statistics such are frequency distribution, percentages, and means, in order to define the socio-economic characteristics of cashew farmers in the study areas, as well as to analyze the risk management strategies adopted by cashew farmers.

Index ranking

Following the methodology of Ndamani and Watanabe (2016), the Index ranking approach was used to measure the risks and constraints faced by cashew farmers. Responses for the ranking were rated by using a 5-point Likert-scale with the scoring order of 5, 4, 3, 2, and 1 as strongly agree, agree, neutral, disagree, and strongly disagree, respectively. In social sciences and research, the 5-point Likert-scale analysis is a commonly used survey instrument for gauging attitudes, opinions, and perceptions.

Further, the Weighted average index (WAI) analysis was performed by the next formula (Ndamani, Watanabe, 2016):

$$WAI = \frac{F5W5 + F4W4 + F3W3 + F2W2 + F1W1}{F5 + F4 + F3 + F2 + F1} \dots (1)$$

$$WAI = \frac{\sum FiWi}{\sum Fi} = \frac{WI}{\sum Fi} \dots (2)$$

Where,

F = frequency;

Wi = weight of each scale;

i = individual scale;

WI = weighted index.

Results and Discussions

The socioeconomic characteristics of cashew farmers are analyzed and include gender, age, marital status, farming experience, household size, educational status, membership of association, and access to credit facilities. The mentioned characteristics are presented in next table (Table 1.).

A majority (79.2%) of the respondents were males, contrary to 20.8% of females, meaning that cashew production in the study area is dominated by males. This is in line with the findings of Farayola et. al (2013), who revealed that 78.4% of cashew farmers in their study area are males. Larger share of males could be found in fact that male kids are usually thought to be the inheritors of farmland. In addition, a plausible explanation for this dominance could be that women are mostly active in off-farm activities such as storing and selling farm products, while men have been concentrated solely on farm activities. A vast majority of the respondents (74.1%) were above 50 years of age, while 17.5%, 6.7%, and 1.7% of the respondents were in age groups of 41-50, 30-40, and below 30, respectively.

Table 1. Socio-economic characteristics of cashew farmers in the study area

Variables	Frequency (n=120)	Percentage	Mean
Gender			
Male (1)	95	79.2	
Female (2)	25	20.8	-
Age			
Below 30	2	1.7	
31-40	8	6.7	
41-50	21	17.5	56.04167
51-60	28	23.3	
61-70	28	23.3	
71 and above	33	27.5	
Marital status			
Married	93	77.5	
Widow	26	21.7	-
Single	1	0.8	-
Farming experience			
Below 20	10	8.3	
21-40	49	40.8	39.558333
41-60	45	37.5	
60 and above	16	13.3	
Household size			
Below 5	7	5.8	
5-10	46	38.5	11.933333
11-15	54	45.0	
16 and above	13	10.8	
Education level			
Primary	31	25.8	
Secondary	27	22.5	-
Tertiary	9	7.5	-
No formal	53	44.2	-
Membership association			
Yes	70	58.3	-
No	50	41.7	-
Access to credit			
Yes	7	5.8	-
No	113	94.2	-

Source: Salami et al., 2022.

Related to marital status, 77.5% of respondents belong to the group of married, 21.7% of them were widows, and 8% of respondents were single. This result shows that cashew farming is mostly dominated by married people in the study area. Modal years of farming experience is 21-40 years, meaning that the farmers are vast in the cashew business. Mentioned could affects their productivity and capability to manage risks associated with cashew farming. With regards to household size (size

of family), 45% of the respondents had a household size of 11-15 people. This could help reduce the cost of hiring labor.

The distribution in terms of the education level shows that 25.8% of the cashew farmers finished primary education, 22.5% of them had secondary education, only 7.5% of them had tertiary education, and 44.2% have no formal education. Mentioned agrees with the research results of Oluyole et al. (2015), who found that 44.4% of their respondents had no formal education.

This result indicates that most of the respondents are illiterate, and this could be a limitation to the type of risk management strategies that can be adopted by the farmers. Besides, 58.3% of the respondents are members of the association, while 41.7% are not. Lastly, Table 1. shows that 94.2% of respondents had no access to credit, while only 5.8% had access to credit facilities.

On the one hand, there are identified the major risks faced by the cashew farmers, while on the other hand, there are examined the constraints that militate against their efficiency. The identified risks include pest and disease infestation, adverse weather conditions, theft, and price fluctuation. The main constraints are poor extension services and inadequate storage facilities (Table 2.).

Table 2. Risks and constraints faced by cashew farmers

Risks and Constraints	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	WS	MS	Rank
Pest and disease infestation	31	82	6	1	0	503	4.19	4 th
Adverse weather condition	61	53	6	0	0	533	4.45	3 rd
Theft	86	32	2	0	0	564	4.70	2 nd
Price fluctuation	94	26	0	0	0	576	4.78	1 st
Poor extension services	9	53	47	11	0	420	3.50	5 th
Inadequate storage facilities	2	2	14	88	14	258	2.08	6 th

Source: Salami et al., 2022.

Note: WS - Weighted score; MS - Mean Score.

Price fluctuation, as revealed in Table 2., is the most challenging risk faced by cashew farmers in the study area. Price fluctuation simply refers to variability in prices over time. This is a challenge globally for the most farmers. As such, they have to rely on government intervention and income diversification to mitigate the risk of price fluctuation. Theft is ranked as the second risk facing cashew farmers. This is in line with the findings of Philips (2016), and Lawal and Uwagboe (2017) who have also identified theft as a large risk faced by cashew farmers in Oyo state. Cashew farmers are vulnerable to theft of cashew nuts by strangers because of their high nutritional and economic value.

Another risk that cashew farmers are faced with is unfavorable weather conditions. Cashew production is generally rainfed in Nigeria, hence adverse weather conditions could pose a serious production risk. Although cashews are drought-resistant, adverse weather conditions can affect the fruit and nut size which in turn would affect the level of farmers' profit. Pest and disease infestation is ranked 4th. All these risks, especially in developing countries have negative effects on farmers' livelihoods, and even a nation's food security, due to the possibility of a decline in overall crop production (Shang, Xiong, 2021).

Poor extension services and inadequate storage facilities are the primary constraints faced by the cashew farmers within the observed territory.

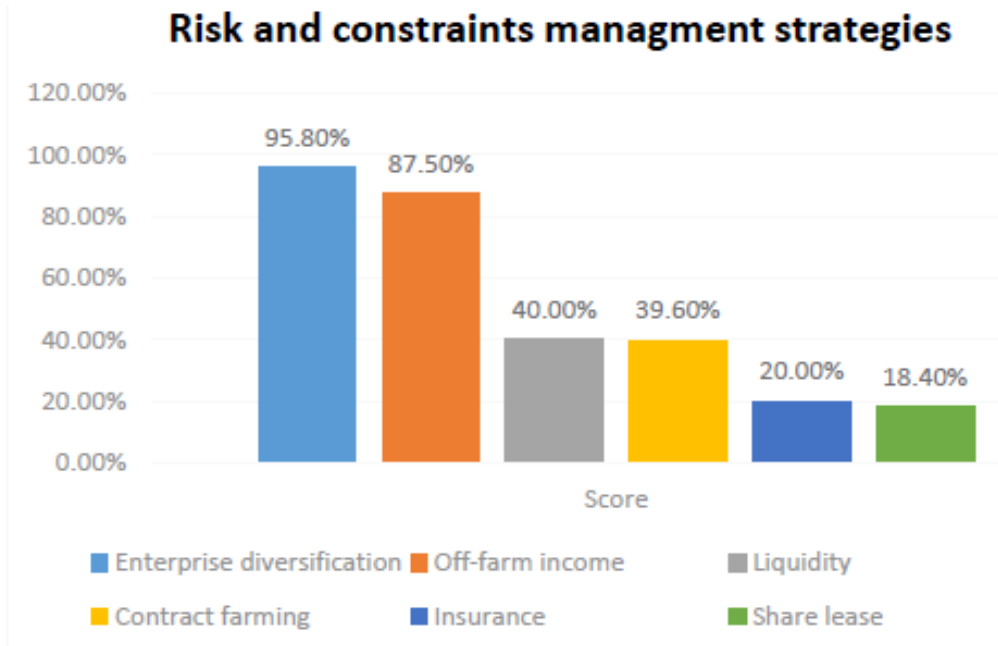
Risks and constraints management strategies adopted by cashew farmers

Figure 1. shows that 95.8% of the respondents diversified their enterprise as the major risk management strategy adopted by the cashew farmers, particularly against risks like price fluctuation, adverse weather conditions, and theft. This is in line with the result of Motin et al. (2015), who reported that 83.5% of farmers in Ghana adopted diversification as a major risk management technique in farming. A plausible explanation for this could be the unstable and sometimes unpredictable nature of farming. Thus, farmers tend to diversify into businesses with low-risk levels. Also, 87.5% of the respondents have means of earnings from off-farm income. These arise either from agriculture/non-agriculture-related activities, such as trading, weaving, fishing, and poultry farming.

Around 20% of the respondents adopted insurance as a risk management strategy against pest and disease infestation and adverse weather conditions. This is in line with *a priori* expectation. Most farmers are unwilling to take up insurance for their farm activities, due to the high costs of insurance, and the rigorous administrative procedures. Other risk management strategies adopted in the study area include liquidity (40%), contract farming (39.6%), and share lease (18.4%).

Sufficient liquidity enables farmers to make investments in security measures to safeguard their harvested crops and cashew orchards. This could entail putting in place surveillance systems, hiring security guards, or taking other anti-theft precautions. When farmers have enough money, they can react quickly to theft situations, and take prompt action to protect their assets.

Figure 1. Risk and constraints management strategies adopted by cashew farmers



Source: Salami et al., 2022.

More so, farmers can quickly invest in pest and disease management techniques when they have enough financial assets. This entails investing in disease-resistant cultivars, buying high-quality insecticides, and employing qualified workers to carry out pest management procedures. Prompt investments can shield the cashew crop and production overall against infestations or lessen their effects.

Conclusion and Recommendations

To conclude, price fluctuation, theft, adverse weather conditions, and pests and diseases are the major risks faced by cashew farmers in Ogbomosho. Their major constraints are inadequate access to extension services and inadequate storage facilities. Enterprise diversification, off-farm income, insurance, and liquidity remain the major risk management strategies adopted by cashew farmers. This research has

thus contributed to the existing knowledge on risk management strategies in cashew farming, particularly in the context of Ogbomosho, Oyo State, Nigeria. The research results will assist policymakers, agricultural organizations, and farmers in developing targeted interventions and support mechanisms to strengthen risk management, practices and improve the overall resilience of cashew farming systems in Nigeria.

Future research can analyze the dynamics of technology adoption among cashew farmers through the gender lens. The following recommendations are hereby suggested based on the study findings:

1. Implementation of a price support program for the protection of farmers against price fluctuations;
2. To safeguard farmers against huge losses that can occur during the production process, farmers should be urged to obtain insurance coverage;
3. Planting materials that are tolerant to drought, and resistant to pests and diseases should be also made available to farmers.

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