

<https://doi.org/10.33003/jaat.2025.1104.01>

UNLOCKING THE POTENTIALS OF TOMATO MARKETING IN NASSARAWA LOCAL GOVERNMENT AREA OF KANO STATE, NIGERIA

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ABSTRACT

Tomato is among leading vegetable crops with high economic value and market potentials, although there are several bottlenecks which affects the marketing of the crops in Nigeria. The study analysed the potentials of tomato marketing in Nassarawa local government area of Kano State, Nigeria, which the specific objectives were to examine socio-economics characteristics, estimate costs and returns from marketing, identify strengths, weakness, opportunities, and threats of marketers, and constraints faced by tomato marketers in the study area. Multi-stage sampling procedures was employed to select 84 marketers for this study. Kobo collect application was used to elicit information marketers using trained enumerators. Data collected were analysed using descriptive statistics, Net farm income analysis (NFI), SWOT analysis and Kendall coefficient of concordance. The result shows that tomato marketers were males (above 75%), married, with an average age of 38 years. The average household size among marketers ranges from 4-6 members, and mean marketing experience of 10 years, which shows some level of experience in tomato marketing in the study area. The result for the Net farm income analysis shows that the tomato marketers make a profit of ₦59,050 per 200kg of tomato fruit baskets sold, which shows tomato marketing is profitable enterprise. The Kendal result for tomato marketers shows a low agreement among them, which shows response diversity among them. The ability to coordinate good supply chain in rural area ($\bar{x}=3.21$) limited knowledge on tomato handling and storage ($\bar{x}=3.27$), high demand for tomato ($\bar{x}=3.04$) and glut during the peak season ($\bar{x}=3.43$) were the strengths, weaknesses, opportunities, and threats identified respectively by tomato marketers. The major constraints identified were fluctuation in prices and low patronage of tomato fruits. The study concludes that tomato marketing has the economic potentials which is capable of improving tomato marketer's livelihood status in the study area. It recommends the promotion of specific support programs by Kano Agricultural Development Programme and Government to tackle constraints among marketers in the study area.

Keywords: *Potentials, Tomato, marketing, and profitability*

INTRODUCTION

Agriculture remains the pillar of most developing countries including Nigeria, the sector is capable of improving the nation economic growth and development which could contribute to income generation, poverty reduction, and gross domestic product (Olutumise, 2020). Tomato (*Lycopersicon esculentum*) is among the major vegetables being produced in the country, and is consumed in various forms (Aremu, Adeyemo, and Olugbire, 2016). Nigeria is a major player in the production of tomatoes in the world with 3.69 million tons produced in the year 2020, occupying 13th and 2nd positions in the world and Africa, respectively (Udoh, and Inim, 2020). According to the National Horticultural Research Institute (NIHORT, 2023), Nigeria produced over 2.3 million metric tons of tomatoes in 2023 with annual demand of 3 million metric tons.

Kano State is one of the largest producers of tomatoes in Nigeria (Usman, 2019), accounting for approximately 7.5% (44,020 ha) of the nation's total land area under tomato production (Plaisier, *et al.*, 2019) contributing about 24% of the total production (NIHORT, 2023).

According to the National Bureau of Statistics, (2017) Kano State is the third-largest tomato producing state in Nigeria, with an annual production of over 1.5 million metric tons.

The country's capacity to meet the demand for tomato and tomato products year-round affect all actors along the tomato value chain right from input supply to distribution and consumption level. Tomato plays an important role in solving problems of unemployment, providing income, and increasing food and nutritional requirements. The crop is sold fresh from the farm gate and marketed for human consumption or to the final consumer, where there is a significant interstate trade in tomatoes in Nigeria (Ijigbade, *et al.*, 2023). Despite this status in the global and regional ranking in tomato production, the country still imports tomato to meet its demands (Okojie, 2018). Sunday *et al.* (2018) reported that Nigeria's annual tomato imports were valued at US\$170 million. The import of fresh tomatoes continues to increase due to not only a production deficit but also changes in consumer tastes and preferences (Adegbola *et al.*; 2018).

Ilu *et al.* (2021) reported that the sector faces many challenges due to several imperfections and problems which have to be rectified in other to stimulate the production and bring efficiency in marketing and processing. The challenges result in low profitability for actors along the value chain, particularly smallholder farmers who lack access to credit facilities and improved agricultural

practices (Amao *et al.*, 2022). Previous studies on tomato marketing by Osunmakinde *et al.* (2024) focused on marketing analysis of fresh Tomatoes, while Ibrahim, *et al.* (2020) analysed socioeconomic factors influencing marketing efficiency of fresh tomato marketers, these studies identified the profitability and factors without capturing other aspects which can also improve potentials of tomato marketing among the actors. Limited attention had been given to the potentials of tomato marketing enterprise in improving economic and livelihood status, opportunities and threats faced by marketers in the study area. Thus, this study tends to close these gaps in literature. The tomato industry in Kano State, Nigeria, is critical to the state's food security and economic development. Although the industry faces challenges, various initiatives have been introduced to improve tomato production and marketing in the state. Kano State has the potential to become a significant player in the global market with continued support and investment.

RESEARCH OBJECTIVES

The main objective of this study was to analyse the potentials of tomato marketing in Nassarawa Local government area of Kano State, Nigeria, while the specific objectives of the study were to:

- i. describe the socio-economic characteristics of tomato marketers,
- ii. estimate the cost and returns from tomato marketing,
- iii. identify strength, weakness, opportunities, and threats of tomato marketers,
- iv. examine the constraints associated with tomato marketing in the study area.

METHODOLOGY

Study Area

This study was conducted in Kano state Nigeria, the state is located in northwestern Nigeria and lies between latitude 13°N and 11°S and longitude 8°W and 10°E with a total land area of 20,760sq kilometers. The state has a total of 44 local

government areas with a projected population of 15,462,177 million people (with 8,025,613 males and, 436,564 females) at 3.38% increase (NPC/NBS, projection report, (2023). The state share boundaries with Katsina State (northwest) Jigawa State (northeast) Bauchi State (southeast) and Kaduna State (southwest). The State has a Sahelian climate with alternate dry-and-wet season and an annual rainfall of over 670mm to 830mm. Rainfalls from May to early September of every year with an average duration of 4 to 5 months period with a fluctuating temperature of 29°C and 37°C. Kano State is made up of 44 Local government areas. Nassarawa is one of the 44 local government areas of Kano State, with high population of individuals. Tomato is among the common crops grown in the state, with high demand for the commodity in the urban area. The Nassarawa local government is located in the metropolis which is in the central area of Kano state, where this study was carried out. The state has a vegetation of Sudan savannah sandwiched by Sahel savannah in the north and guinea savannah in the south which makes the state suitable for tomato and other vegetables production (Van der Waal, 2015). Agriculture is the most important pillars of the state economy with about 75% of the total working population engaged directly in farming activities (KNARDA, 2020).

Sampling procedure

A multistage sampling procedure was employed for this study. The first stage involved purposive selection of Nassarawa local government area due to high concentration of tomato marketers and marketing activities in the area. The second stage involved the purposive selection of Yankaba market within the local government area, due to that fact of been the largest vegetable market among other markets. The third stage involved a random sampling of marketers within the selected market based on the sampling frame of tomato marketers as shown in Table 1. The sampling frame of Tomato marketers was obtained from the market association within the study area, while Raosoft online sample size calculator was used to estimate the sample size.

Table 1: Summary Table for sample size of Tomato Marketers in the Study Area

Local Government Area	Market	Sampling frame	Sample size
Nassarawa	Yankaba	106	84

Source: Field Survey, 2025

Method of Data Collection

The primary data were collected through personal interviews using a-structured questionnaire to gather information from the tomato marketers in the study area. The questionnaires developed were later incorporated into Kobo collect which is a data collection software application for collecting data on the field. The primary data collected includes; socioeconomic characteristics of tomato

marketers, cost and returns information, strength, weakness, opportunities, and threats of marketers, and constraints associated with tomato marketing in the study area.

Analytical Techniques

Data for this study were analysed using descriptive statistics, Net farm income analysis (NFI), SWOT analysis and Kendell coefficient of concordance. Descriptive statistics such as frequency, percentage, measure of central

tendency, charts and tables. Net farm income was employed to analyse cost and returns from tomato marketing, while Kendel coefficient was employed to examine constraints associated with tomato marketing.

Model specification

Net Farm Income Analysis (NFI)

Net farm income analysis was used to achieve objective (ii). Following the study of Saras et al. (2023), Net farm income is the difference between the gross farm income (GMI) and total cost (TC) of production. Gross farm income is obtained by adding the total revenue generated by selling tomatoes produced by marketers, value of home consumed, value of given as gift and value of the by product. The total fixed cost is the cost incurred for the purchase of all fixed items or inputs used by the marketers during marketing activities. Total variable cost (TVC) was obtained from the sum of the cost of all variable inputs used in the tomato marketing activities.

It is mathematically represented as;

Gross farm income (GMI) = Price x

Quantity..... (i)

NFI= GFI –TFC- TVC (ii)

GMI= gross farm Income (that is that value of the total marketed tomato in basket/kg/₦)

TVC= Total variable cost (kg/₦)

TFC= Total fixed cost of processing equipment (depreciation value in ₦)

PX₁= Unit price

K=Quantity

∑ PX_i .K = (PX₁.K₁+ PX₂.K₂....PX₆.K₆)..... (iii)

Where,

PX₁= unit cost of tomato purchased (₦)

K₁= quantity of tomato purchased (kg)

PX₂= unit cost of sold (₦)

K₂= quantity of tomato sold (kg)

PX₃= unit cost of transported (₦)

K₃= quantity of tomato transported (kg)

PX₄= unit cost of water supply (₦)

K₄= quantity of water supply (litres)

PX₅= unit cost of labour (mandays)

K₅= amount of labour (₦)

PX₆ = cost of marketing equipments (baskets, and plastic containers) (₦)

PX₇ = unit cost of market commission (₦)

K₇= quantity of commission per tomato basket

The tomato marketing was measured per kilograms (kg) of tomato basket, 1 basket was equivalent to 50kg

Depreciation value

Depreciation values were calculated using decline balance method. This was estimated by taking 10% of the original value was the marketing equipment. The depreciated values of basket and plastic containers were calculated using this method.

SWOT Analysis

The strength, weakness, opportunities, and threats (SWOT) analysis was employed to archive objective (ix), which identified the different variation that exist among tomato marketers in the study area. A five-point likert scale was employed which includes (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly Agree). A mean score of 3.0 was used to know whether the parameters were true or not. A score equal to 3.0 implies the identified parameters (SWOT) was accepted, while value less than were rejected. The acceptance means that the parameter such as strength or weakness below the mean values were false representation while above were true.

Kendell Coefficient of Concordance (w)

The Kendall’s coefficient of concordance also know (kendall’s W) is a non-parametric statistic used to measure the agreement or concordance among variables. This was used to measure the constraints faced by tomato marketers in the study area (objective iv). Following the work of Gearhart et al. (2013), Kendall’s coefficient was used to measure agreement among variables which were image parameters. This method assessed the degree to which multiple rankings of a set of items are consistent to each other.

The kendall’s W is applied in different field including in agriculture to determine the reliability of rankings or to assess consensus among variables. The variables are ranked into single rank and the computation of Kendall’s W ranges from 0 to 1. Suppose there are n items ranked by m raters, create a data matrix R of size n xm, where each element of R_{ij} represent the rank given rate j to item i

Calculate sum of ranks for each item across raters

R_i= ∑_{i=1}^m Rij..... (iv)

R_i= is the sum of ranks for i

$\bar{R} = \frac{1}{n} \sum_{i=1}^m Ri$ (v)

\bar{R} = Mean of the rank sums

$S = \sum_{i=1}^n (Ri - \bar{R}) * (Ri - \bar{R})$ (vi)

Kendall’s W = $\frac{S}{m^2(n^3-n)}$ (vii)

RESULT AND DISCUSSION

Socio-economic Characteristics of Tomato Marketers in the Study Area

The socio-economic characteristics of tomato marketers were presented in Table 2 and 3. The result shows that most of tomato marketers (58.53 %) were between the age brackets of 35-40 years, while (21.43%) were between age brackets of 41-46years. The distribution reveals the mean age of 38 years. This implies that most of the tomato marketers are in their productive age in tomato marketing in study area. The finding from this study agrees with Osunmakinde *et al.* (2024) where they reported that the

mean age of tomato marketers in Ogun State, Nigeria were above 37 years, which shows they were in their productive age of tomato marketing. The result shows that most (44.05%) of marketers have been into marketing for about 9-15years, (41.67 %) of them have been into marketing for about 2-8 years, while (2.38%) had marketing experience between 30-36 years. The distribution also reveals a mean of 10 years. The experience could help enhance the ability of a marketer to make additional profit margin. The result

shows that the average household size of Tomato marketers was 6 persons while most (53.57%) of them had household size of 4-6 members. This implies a large household size in the study area. This agrees with the finding of Akinbola *et al.* (2023) where they observed that most of the tomato marketers in Ondo State, Nigeria had between 4-6 members within the household, which could serve as family labour for tomato marketing activities.

Table 2: Quantitative Socio-Economic Characteristics of Tomato Marketers in the Study Area

Variables	Frequency	Percentage	Minimum	Maximum	Mean	Standard Deviation
Age (Years)			23.0	52.0	38.0	4.99
23-28	3	3.57				
29-34	12	14.29				
35-40	49	58.53				
41-46	18	21.43				
47-52	2	2.38				
Experience in Marketing (Years)			2.0	36.0	10.0	6.45
2-8	35	41.67				
9-15	37	44.05				
16-22	7	8.33				
23-29	3	3.57				
30-36	2	2.38				
Household Size (Persons)			1.0	16.0	6.0	3.11
1-3	15	17.86				
4-6	45	53.57				
7-9	14	16.67				
10-12	6	7.14				
13-16	4	4.76				
Annual from Tomato marketing (₦)			8,0000	2,000,000	606,821.4	447,016
80,000-464,000	37	44.05				
464,001-848,001	33	39.29				
848,002-1,232,002	6	7.14				
1,232,003-1,616,003	5	5.95				
1,616,004-2,000,004	3	3.57				
Total	84	100				

Source: Field Survey Data, 2025.

Sex distribution of the marketers was presented in Table 3, result shows that majority (79.76 %) of tomato marketers were males while (20.24%) of them were females in the study area. This implies that tomato marketing activities was male dominated in the study area. This could be due to cultural factors which limits women to manage the household and serve as barrier to engage more in tomato marketing activities. The result from this finding is in line with finding of Garba and Mohammed (2020) where they

observed that tomato marketing activities in Katsina State, Nigeria was male dominated enterprise. The results further shows that most (46.43%) of the tomato marketers in the study area had Quranic education, (25.00%) have primary education, (21.43%) had secondary education, while (7.14%) have tertiary education. This implies that most tomato marketers in the study area have formal education. Formal education might serve an advantage to improve marketing information in the study area. The finding is

similar to Abdurrahman *et al.* (2022) who discovered that most of the tomato marketers in Kano State, Nigeria had access to formal education which can aid market information and enhance profit margin. The result indicates that most (69.05%) of the tomato marketers were members of association or groups, while (30.9%) do not belong to any association or group in the study area. This implies that

most tomato marketers in the study area were members of association which serve as an opportunity for them in terms of credit access in the study area. This finding corroborates with that of Omotayo *et al.* (2020) where they discovered that most of the tomato marketers in Oyo State, Nigeria were members of association where they enjoy certain benefits as a group.

Table 3: Qualitative Socio-Economic Characteristics of Tomato Marketers in the Study Area

Variables	Frequency	Percentage
Sex		
Male	67	79.76
Female	17	20.24
Marital Status		
Single	10	11.90
Married	65	77.38
Widowed	7	8.33
Divorced	2	2.38
Level of education		
Quranic	39	46.43
Primary	21	25.00
Secondary	18	21.43
Tertiary	6	7.14
Membership of Cooperative		
Member	58	69.05
Non-member	26	30.95
Contact with extension agents		
Contact	20	23.81
No contact	64	76.19
Access to Credit		
Access	67	79.76
Non-access	17	20.24
Major Occupation		
Trading	64	76.19
Farming	13	15.48
Civil Servant	3	5.92
Artisan	2	2.38
Total	84	100

Source: Field Survey Data, 2025.

Cost and returns from Tomato Marketing in the Study Area

The cost and returns from Tomato marketing were presented in Table 4. The result for retailers revealed that the total fixed cost was estimated to be ₦300, and accounts for 0.39% of the total cost of marketing. The result for retailers revealed that the average cost of inputs incurred in retail marketing of 4 baskets (200kg) of tomato was estimated to be ₦72,840 and constitutes 97.83% of the total marketing cost. The average cost of labour incurred in retailer marketing 4 baskets (200kg) of tomato was estimated to be ₦1200 and constitutes 1.60% of the total marketing cost. The average cost of market levy for 4 basket

(200kg) was estimated to be ₦100 and constitutes 0.13 % of total marketing cost. The result also revealed that the total marketing cost was estimated to be ₦74,440. The average tomato sold daily was 4 baskets (200kg), with a revenue of ₦ 96,980 in the study area. Furthermore, the return to naira invested was found to 0.3. This implies that for every 1 naira invested in tomato retail marketing enterprise 0.3 kobo was realized. This result shows that tomato retail marketing was very profitable in the study area. This finding corroborates with that of Akinbola *et al.* (2023) where they discovered that the return on investment for tomato marketing in Ondo State, Nigeria was profitable.

Table 4: Average Cost and Returns from Tomato Marketing in the Study Area (200kg)

Cost	Quantity	Unit Price	Total cost	Percentages
Fixed Cost (Depreciated values at 10%)				
Baskets		80	80	0.10
Plastic container		70	70	0.09
Tarpuline		150	150	0.20
(A) Total Fixed Cost			300	0.39
Variable Costs				
Purchase price of Tomato fruits (basket)	200	350.5	70,100	94.16
Water Supply	2	70	140	0.18
Packaging materials(nylons)	2	1300	2600	3.49
Labour (loading and offloading)	2	600	1200	1.60
Market Levy	4	25	100	0.13
(B)Total Variable Cost (TVC)			74,140	99.54
(C) Total Marketing Cost (TC)			74,440	100
Returns				
Average Tomato sold per basket (50kg)	4.0			
Average price		24,245		
(D)Total Revenue			96,980	
(E)Gross Market Margin(D-B)			22,840	
(F)Net Market Margin(D-C)			22,580	
(G) Operating Ratio(C/D)			0.77	
(H)Return Per Naira Invested (ROI)			0.30	

Source: Field Survey Data, 2025.

Strength, Weakness, Opportunities, and Threats of Tomato Marketers in the Study Area

The strength, weaknesses, opportunities of tomato marketers were presented in Table 5. The strength identified by tomato marketers are the ones which promote effective marketing. The major strength identified by tomato marketers was their ability to coordinate good supply chain (\bar{x} =3.21)

This implies that marketers had good coordination with local farmers on the supply of tomato fruits based on the mean score which was above 3.0 value, while values less than this shows any of the identified parameters are not true. The other strengths identified by tomato marketers were experience on tomato marketing (\bar{x} =3.02) which implies that tomato marketers had experience which could serve as a strength within the enterprise. The major tomato marketers identified major weaknesses were limited knowledge on tomato handling and storage (\bar{x} =3.27), and limited knowledge on

digital marketing (\bar{x} = 2.79), this shows they had limited knowledge on infrastructural facilities which could lead to economic damages, while for digital platforms they are currently using it, but need for more training on the usage it could increase their customer outreach, based on the low mean value, thus it is not a major weakness.

The major opportunity identified by tomato marketers was high demand for fresh tomato fruits (\bar{x} =3.04) with about 48.79% of them agreed or strongly agreed to it as an opportunity. This implies that there was a high demand for fresh fruits from consumers in the study area. The other opportunity identified was existing tomato aggregation points (\bar{x} =2.94) which was not a major one due to low mean value, this implies that there a lot of aggregation potentials yet to be exploited in the study area. Furthermore, tomato marketers were faced with significant threats which affected their marketing in the study area. The major threats identified

by marketers which pose a serious challenge was glut during peak season ($\bar{x}=3.43$) and high perishability of tomato fruits ($x=3.17$), these implies that tomato marketers face low prices and wastes of tomato fruits during the peak seasons. The tomato fruits is highly perishable, thus marketers face perishability of the commodity which pose a serious threat to

their profitability. The finding is in agreement with Adamu (2016) where he observed that the strength, opportunities, and threat identified by tomato marketers in Kano State, includes experienced in marketing, high demand for tomato, and price fluctuations respectively.

Table 5: Strength, Weakness, Opportunities, and Threat of Tomato Marketers in the study area

SWOT	Strongly Disagree(1)	Disagree(2)	Neutral(3)	Agree(4)	Strongly Agree(5)	Mean Score
Strength						
Ability to coordinate good supply chain in the rural areas	8(9.52)	13(15.48)	22(26.19)	35(41.65)	6(7.14)	3.21
Experience on tomato marketing	3(3.57)	22(26.19)	16(19.05)	36(42.86)	7(8.33)	3.02
Weakness						
Limited knowledge on tomato handling and storage	2(2.38)	28(33.33)	20(23.81)	13(15.48)	21(25.00)	3.27
Limited adoption of digital marketing	8(9.52)	22(26.19)	40(47.62)	7(8.33)	7(8.33)	2.79
Opportunities						
Existing tomato aggregation points	11(13.10)	17(20.24)	30(35.71)	17(20.24)	9(10.71)	2.95
High demand for fresh tomato	14(16.67)	26(30.95)	12(14.29)	7(8.33)	25 (29.76)	3.04
Export potentials to other state and companies	9(10.71)	26(30.95)	32(38.10)	15(17.86)	2(2.38)	2.70
Proxy to urban Markets	8(9.52)	34(40.48)	29(34.52)	11(13.10)	2(2.38)	2.58
Threats						
Price fluctuations	4(4.76)	30(35.71)	30(35.71)	14(16.67)	6(7.14)	2.86
Glut during peak season	8(9.52)	20(23.81)	10(11.90)	20(23.81)	26(30.95)	3.43
High Perishability of tomato fruits	6(7.14)	18(21.43)	28(33.33)	20(23.81)	12(14.29)	3.17

Source: Field Survey, 2025

Constraints faced by Tomato Marketers in the Study Area

Two approaches were employed to examine the constraints faced by tomato marketers in the study area. Kendal coefficient of concordance and descriptive statistics. The Kendal results in Table 6 shows the agreement among the constraints faced whether they were similar or not, while the descriptive results show the each of the constraints identified by marketers in the study area. The results for tomato marketers show a Kendal value of ($W=0.2259$) which shows low agreement among them. This shows a diversity among them in terms of experience and operation along the chain. The tomato marketing in the study area is dynamic and localized with several constraints such as perishability, poor market information, fluctuation in prices

and low patronage. The descriptive results for constraints faced by tomato marketers were presented in Figure 1. The first and most important constraint was fluctuations in prices (82.14%) this is due to the fact that tomato marketers were affected by general inflation which also have effects of marketing of tomato in study area. There was higher the price with low the demand and vice versa. The second ranked constraint was the issue of low patronage (71.43%) this was because most of the marketer only depends on the market environment to advertise their products. This implies that most of them do not seek for alternative platforms to sell their products in the study area.

The third ranked constraint by marketers was the issue of poor credit facilities (38.10%), the marketers had access to credit facilities but was not enough to increase their sales

and profit margin, thus there is need for more credit facilities to support their marketing activities in the study area. The other two constraints which are minor were poor market information (21.43%) and competition from imported brands. The findings from this study is in line with Abdurrahman *et al*; (2022) where they observed that tomato marketers in Kano State, Nigeria were faced with

constraints of inadequate capital, poor storage facilities, price fluctuations, and poor transportation facilities. This also corroborates with Sodeeq *et al.* (2021) where they discovered that inadequate capital, price fluctuation, and poor market information were among the major constraints faced by tomato marketers in Oyo State, Nigeria.

Table 6: Kendell Coefficient of Concordance (W) Results for Tomato Marketers in the Study Area

Variable	Kendal (W) Value	Decision
Tomato Marketers	0.2259	Low agreement

Source: Field Survey Data, 2025

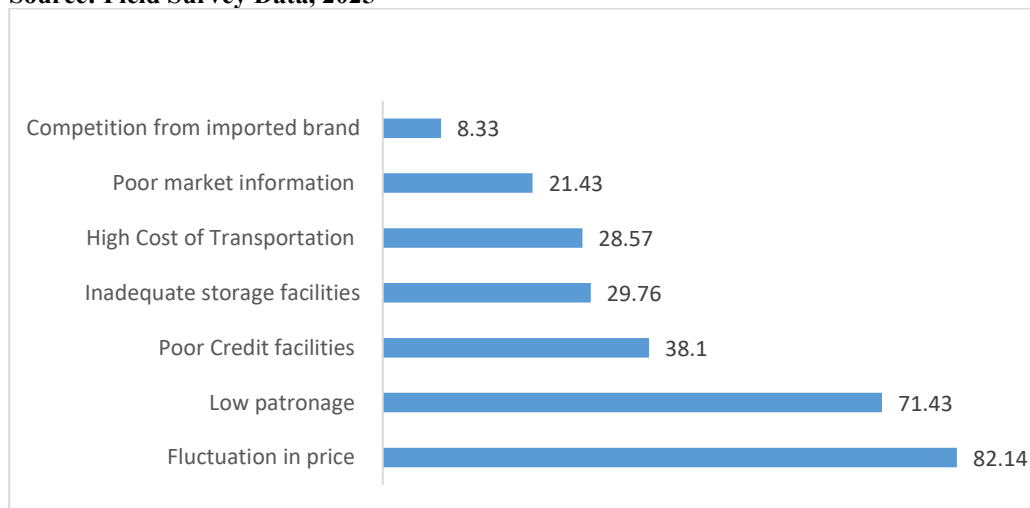


Figure 1: Constraints faced by Tomato Marketers

CONCLUSION AND RECOMMENDATIONS

There are a lot of potentials in tomato marketing, yet to be harnessed, the result from the study shows opportunities exist along the tomato marketing chain. The study concludes that tomato marketing has the economic potentials which is capable of improving tomato marketer’s livelihood status in the study area. The study recommends the promotion of specific support programs by Kano Agricultural Development Programme and Government to tackle constraints among tomato marketers. Improvement of policies by Government and key stakeholders that can attract more private investors into market activities leading better marketing opportunities. Promotion of cold chain storages and other facilities by non-governmental organization and other stakeholders to solve issues related to perishability of tomato fruits in the study area.

REFERENCES

Abdurrahman, M.U, Abba-Aji A.A, Baraza S.A, Gambo N, Mukhtar, D., Dauda, M. Salisu, and Nura Salisu Muhammad. (2021). Economic analysis of fresh tomato marketing in Nassarawa local government

area of Kano State. *African Scholar Journal of Biotechnology and Agricultural Research*, 26(1), 175-184.

Adamu, I.K (2016). Analysis of value chain of irrigated tomato in Kano State, Nigeria. a thesis submitted to the school of postgraduate studies, Ahmadu bello university, Zaria in partial fulfilment of the requirements for the award of doctor of philosophy (Ph. D.) degree in rural development.1-170.

Adegbola Y. P, Ahoyo-Adjovi N.R, Adekambi S. A, Zossou R, Sonehekpon E. S, Assogba Komlan F. and Djossa, E. (2018). Consumer preferences for fresh tomatoes in Benin using a conjoint analysis. *Journal of International Food and Agribusiness Marketing*, 10(1), 1-21.

Akinbola, A.E, Borokini, E.A, Ijigbade, J.O, and Ilesanmi, J.O (2023). Economic analysis of tomato (*solanum lycopersicum*) marketing in Ondo State, Nigeria, *Asian Journal of Agricultural and Horticultural Research*, 10(4), 383-393.

- Amao, I. O, Adeoye, I. B, Idris, B. A, Yomi-Owojori, T. O, and Balogun, O. L. (2022). Socioeconomic Shocks and Value Chain Development of Tomato in Kano, Nigeria. In COVID 19 in the African Continent: Sustainable Development and Socioeconomic. *Shocks Emerald Publishing Limited*, 81-92.
- Aremu, F.J, Adeyemo, R and Olugbire, O.O (2016). Economic analysis of fresh tomato marketing in the wet season under Tropical Conditions. *Journal of Sustainable Development*, 13(1), 65-72.
- Garba, N and Mohammed, U (2020). Profitability of tomato marketing in Katsina Local government area, Katsina State, Nigeria. *International Journal of Advances in Engineering and Management (IJAEM)*, 2(9), 450-455.
- Gearhart, A, Terrance-Booth, D, Sedivec, K, and Schauer (2013). Use of kendell's coefficient of concordance to assess agreement among observers of high resolution imagery. *Geocarto International*, 28(6), 517-526.
- Ibrahim, U. S, Tahir, A. D, Abdullahi, B. D. and Abdu, A (2020). Socio-economic factors influencing marketing efficiency of Fresh tomato marketers in Yankaba market of Nassarawa local government area, Kano state, Nigeria. *Journal of Agricultural Economics, Environment and Social Sciences* 6(2), 73 – 82.
- Ijigbade, J.O, Agbede, T.M, Johnson, S. B, Olabode, O.G, Oyeleye. T.A. (2023). Tomato value chain in Southwest Nigeria: An assessment of economic performance, *Scientific Reports in Life Sciences*, 4(2), 45-57.
- Ilu, I. Y, Suleiman, N. J, Sanje, K., and Baba, D. (2021). Comparative Analysis of Tomato Marketing in Karnataka State of India and Kano State of Nigeria. *Journal of Agripreneurship and Sustainable Development*, 4(4), 152 158.
- Kano State Agricultural and Rural Development Authority (2020). Annual Report 2020. Retrieved from KNARDA Annual Report 2020. <https://www.fanshawelibrary.com/wpcontent/uploads/2020/09/APA-7th-Edition-LLC-2020.pdf>
- National Bureau of Statistics (2017) Demographic Statistics Bulletin, 2018 Projected Population by state (2012-2016), 7.
- NIHORT (2023). Available at: <https://nihort.gov.ng/?stomato> (Accessed April 04, 2025).
- Olutumise A.I (2020). Transportation system and output market participation nexus among yam producers in southwest region of Nigeria. *Scientific Paper Series Management, Economic Engineering in Agriculture and Rural Development*. 20(4), 365 – 379.
- Omotayo, A.O, Daud, S.A, Omotoso A.B, and Rasaki, W.A (2020). Tomatoes' (*Solanum lycopersicum L.*) marketing in Ogun State, Nigeria, a case study of Lafenwa market. *International Journal of Sciences and Research*, 76(4), 290-299.
- Osunmakinde, M. A., Akerele, E. O., Mufutau, R. A., and Odunsi, V. O. (2024). Marketing analysis of fresh tomatoes in Abeokuta north local government Area of Ogun State, Nigeria. *Journal of Agribusiness and Rural Development*, 1(71), 5–12.
- Plaisier, C, Dijkxhoorn, Y, van Rijn, F, Bonnand, J, and Talabi, O. (2019). The vegetable and potato sector in Nigeria; an overview of the present status (Wageningen, Netherlands, *Wageningen Economic Research*, 119
- Saras, J. Z., Oladimeji, Y. U, Sani, A. A. and Suleiman, R (2023). Profitability and constraints of peri-urban vegetable production in Kaduna State, Nigeria. *Nigerian Journal of Agriculture and Agricultural Technology (NJAAT)*, 3(1), 230-239.
- Sodeeq, A.E; Ibrahim, A.G; Hamzat, O.A; Oguntade, M.I; Taiwo, O.D; and Adesanlu, A.A (2021). Profitability of tomato marketing and determinants in akinyele local government Area, Oyo State, Nigeria. *Greener Journal of Agricultural Sciences*, 11(1), 41-47.
- Sunday, E, Akinfenwa, G, Falaju, J and Alabi, A (2018). Still a long way to self-sufficiency in Tomato Production, in: the Guardian (Nigeria) assessed 25th September, 2025 online at <https://guardian.ng/saturday-magazine/cover/still-a-long-way-to-self-sufficiency-in-tomato-production>
- Udoh, F.S and Inim, V.E (2020). Impact of tomato processing and wastages in Kano State, *International Journal of Social Sciences*, 4(18), 80-95
- Usman, M. (2019) Kano largest producer of tomatoes in Nigeria. Available at, <https://dailyNigerian.com/kano-largestproducer-of-tomatoes accessed June, 2025>
- Van der Waal, J. W. H. (2015). Tomato production in Kano State, Nigeria: A value chain analysis. Wageningen University. Retrieved from Tomato production in Kano State, Nigeria: A value chain analysis. <https://pubs.rsc.org/en/content/articlelanding/2015/sc/c5sc00410a>