

## TOMATO PRODUCTS' MARKET POTENTIAL AND CONSUMER PREFERENCE IN IBADAN, NIGERIA

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### Abstract

*The paper analyzed Tomato Products' market potential and consumer preference in Ibadan, Nigeria. Primary data on socioeconomic characteristics of consumers, willingness to buy as well as pattern of consumption of Tomato products were collected from 215 randomly selected consumers in 5 Local Government Areas in the metropolis. Data were analyzed using descriptive statistics, T- test and Chi square. Most of the consumers were female (86.5%) with average age of 31.5 years. Majority of the respondents had household size of 1-5 individuals (67.4%) while 79.1% had tertiary education. Most of the respondents showed preference towards Tomato paste (86.05%), Tomato Ketch up and Whole Peel Tomatoes in Bottle (3.72%), Dried Tomato and Tomato Powder (1.86%) while the least preferred was the Tomato juice and Sauce (1.40%). Findings revealed that 52.56% and 59.53% of respondents purchased tomato products at least once a week in the peak and lean season of tomato production. An average of 293.3g and 397.6g of tomato products was purchased weekly in the peak and lean season of tomato production. Household size, age and educational level showed a significant relationship with frequency of purchase. Although Tomato paste is the most patronized, intensive awareness efforts may help to enhance the market potentials of other products.*

**Key words:** consumption pattern, potential, tomato product, usage, willingness

### INTRODUCTION

Tomatoes are an outstanding vegetable with global per capita consumption of 20 kilograms per year and represents about 15% of world average total vegetable consumption [10]. Tomatoes production represents about 4.8 million hectares of harvested land area globally with an estimated production of 162 million tonnes [9]. Nigeria has a world share of 1.3% in tomato production [8]. Tomato is one of the most important and major vegetable grown in Nigeria. The country is the 14<sup>th</sup> largest producer of tomato in the world and 1<sup>st</sup> in sub Saharan Africa [8,18].

Tomato is an essential cooking ingredient in the country. It is a valuable raw material in processed products such as juice, puree, paste, ketchup/sauce, dry slices, powder and canned or bottle whole. It is widely cultivated due to the economic and nutritional importance of the crop. It is a profitable horticultural crop and provides income to farmers and agents involved in production and marketing [20].

The production of Tomato has improved the livelihood of most rural and peri urban farmers [2]. Tomato farming is potentially a 100 Billion Naira market in Nigeria [15].

Tomato consumption per capita reached 10.9 kg in 2013 in Nigeria [12]. Nigeria's domestic demand for tomato is 2.3 million tonnes annually while only 1.8 million tonnes is produced [21]. This has led to importation of an average of 150,000 metric tons of tomato concentrate per annum at a staggering value put at \$170 million [21]. It has been reported that 50% of tomato produced are lost after harvest [16], partly due to poor infrastructure for processing, inadequate packaging facilities [6,13] and inadequate storage facilities [11]. There is seasonal glut and inconsistent year round supply [18], lack of adequate processing facilities as well as cheap imports that consumes the country foreign exchange that could have been saved in the sector. Importation has deprived the economy's foreign reserve and employment opportunities. This calls for diversified value addition of the

raw produce to make tomato available in different forms all year round.

With increasing population, Nigeria has a large market for tomato products. In an effort to improve tomato availability in the country and reduce importation cost, the Federal Government has initiated a new Tomato policy. The Policy objectives are targeted at increasing local production of fresh tomato fruit required for fresh fruit consumption and processing. It is also targeted at increase local production of tomato concentrate and reduces post-harvest losses. The policy is expected to reduce wastages by 40% and create 60,000 jobs for stakeholders in the commodity chain [19].

Consumer preference is a marketing term, defined as the subjective (individual) tastes, as measured by utility, of various bundles of goods by different consumers while market potential is the entire size of the market for a product at a specific time.

Analyzing these will go a long way in ensuring sustainability of developed product. Due to increasing standards of living in the cities and the rapid urbanization taking place in the rural areas, consumption of tomato based products is expected to continue to go up steadily. Furthermore, the government of Nigeria identified tomato as one of the target crop for value chain development and several state governments and private organizations are investing in tomato processing. The development of tomato for industrial use is currently gaining momentum in Nigeria.

Most empirical research has been on fresh tomato; for example, marketing analysis of tomatoes [3, 4, 5, 11], Production efficiency [1, 7], post-harvest losses [5]. To the best of the authors' knowledge there is no study on Tomato products market potential and consumer preference in the study area.

Currently, emphasis is placed on up scaling local tomato paste production in Nigeria. Tomato products made in Nigeria are better in biochemical quality [17].

Little attention is given to other tomato products like juices, ketch-up and powder. In order to make greater progress in tomato processing industry it is important to start from the consumer's point of view. Understanding

consumers' needs, preferences and constraints shall help to map ways for the development and diversification of tomato products.

Thus this research aimed to evaluate tomato market potential and consumer's preferences. This will help processors improve product attributes, competitiveness, and marketability by using knowledge about product attributes that consumers demand. Specifically, the objectives of the study were to:

- (i) Examine consumers' awareness and willingness to buy/ use tomato products;
- (ii) Identify tomato products preferred;
- (iii) Evaluate the characteristics and frequencies of usage of tomato products;
- (iv) Examine the pattern of consumption of tomato products in peak and lean season of fresh tomato.

## MATERIALS AND METHODS

The study area was Ibadan; the state capital of Oyo State, Nigeria with a population of over 3 million, it is the most populous city in the state, and the third most populous city in Nigeria, after Lagos and Kano.

It is located in south-western Nigeria, 128 km inland northeast of Lagos and 530 km southwest of Abuja, the federal capital. It is a prominent transit point between the coastal region and areas in the hinterland of the country.

It lies completely within the tropical forest zone but close to the boundary between the forest and the derived savanna.

There are eleven Local Government Areas in Ibadan Metropolis consisting of five urban and six semi-urban Local Governments Areas. The city is a major center for trade in cassava, cocoa, cotton, timber, rubber and palm oil. The city and its environs is home to several industries such as Textile, Food processing, Health Care and Cosmetic, Tobacco processing and Cigarette manufacturing, Leatherworks and furniture making.

The main economic activities engaged in by the Ibadan populace include Agriculture, Trade, Public service employment, Factory work, Service sector/Tertiary production.

A multistage stage sampling approach was adopted to select a sample of 215 consumers from the city.

The first stage of selection included five local government areas namely; Ido, Ibadan Northwest, Oluyole, Ibadan southwest and Ibadan North. Ibadan northwest, Ibadan southwest and Ibadan North are urban local government areas in the metropolis while Ido and Oluyole are peri urban Local Government Areas.

Four wards were randomly selected from each of the local government in the second stage and in the final stage a total number of 43 respondents were randomly selected from each of the Local Government Areas giving rise to the 215 respondents for the survey.

Descriptive statistics such as frequency, mean and percentages were used to analyze the socio economic characteristics of the respondents, consumers awareness and use of the products while T –test was used to analyze the relationship between the consumption of Tomato products in the peak and lean season of tomato production.

Chi square was also used to measure the degree of association between socio economic characteristics and products attributes.

## RESULTS AND DISCUSSIONS

### Socioeconomic Characteristics of Respondents

Results of the analysis (Table 1) showed that majority of the respondents were female (86.5%); married (69.8%) were aged between 31-40 years (33%) indicating that they are still young and active and will be willing to exploit new products.

This is also the age group that may want products that will be convenient and save time in their respective domestic activities. Findings revealed that majority of the respondents had tertiary level of education (79.10%) which is expected to improve their consideration and evaluation of new products. Household size of 1-5 persons was prevalent in the study area (67.40%).

Most of the respondents had monthly food expenditure of ₦11,000- ₦20, 000 (32.10%). Only 5.6% of the respondents spent between

₦51,000 - ₦60,000 monthly on food in the study area.

Table 1. Socioeconomic Characteristics of Respondents

Variable	Frequency	Percentage
<b>Sex</b>		
Female	186	86.5
Male	29	13.5
Total	215	
<b>Marital Status</b>		
Single	61	28.4
Married	150	69.7
Divorced	1	0.5
Widowed	3	1.4
<b>Age</b>		
<20	7	3.3
21-30	63	29.3
31-40	71	33.0
41-50	42	19.5
51-60	25	11.6
61-70	7	3.3
Mean		<b>31.5</b>
<b>Educational Level</b>		
No formal Education	4	1.9
Primary	13	6.0
Secondary	28	13.0
Tertiary	170	79.1
<b>Household size</b>		
1-5	145	67.4
6-10	70	32.6
Mean		<b>5</b>
<b>Monthly food expenditure ₦</b>		
<10,000	55	25.6
11,000-20,000	69	32.1
21,000-30,000	37	17.2
31,000-40,000	23	10.7
41,000-50,000	19	8.8
51,000-60,000	12	5.6
Mean	17,554	

Source: Field Survey, 2016

### Willingness to buy and use Tomato Products

Findings revealed that most of the respondents bought Tomato products regularly (99.07%); indicating the strength of the market potentials for Tomato products in the study area (Table 2). The following reasons were given by the respondents for purchasing Tomato products; used to augment fresh tomatoes in soup and dishes (45.58%), substitute for fresh tomatoes (28.83%), ease of use (26.04%). The usual high prices of fresh tomatoes during the off season were also cited as a major reason influencing the demand for Tomato products (2.79%). The result of the study revealed that majority of the respondents were aware about Tomato paste (98.60%), Whole Tomatoes in bottle (43.26%), Tomato Ketch up (41.86%), Tomato juice (39.07%), Tomato dry slices (37.67%) while

23.26% of the respondents were aware about Tomato powder and Whole Peel Tomatoes respectively.

Table 2. Willingness to buy and use Tomato Products

Variable	Frequency	Percentage
<b>Do you buy Tomato Products</b>		
Yes	213	99.07
No	2	0.93
<b>Reasons for buying tomato products (n=222)</b>		
Ease of use	56	26.04
Combine with fresh tomatoes	98	45.58
Substitute for fresh tomatoes	62	28.83
High price of fresh tomatoes	6	2.79
<b>*multiple responses</b>		
<b>Awareness about Tomato Products (n = 703)</b>		
Tomato Paste	212	98.60
Tomato Powder	50	23.26
Tomato dry slices	81	37.67
Chopped Tomatoes	43	20.00
Tomato Juice	84	39.07
Whole Peel Tomatoes	50	23.26
Whole Tomatoes	93	43.26
Tomato Ketch Up	90	41.86
<b>*multiple responses</b>		
<b>Willingness to use Tomato Products (n = 173)</b>		
Tomato Paste	189	87.91
Tomato Sauce	65	30.23
Dried Tomato	60	27.91
Chopped tomato	43	20.00
Tomato Powder	64	29.77
Tomato Juice	66	30.70
Tomato Ketch Up	87	40.47
Tomato Dry slices	37	17.21
Whole Peel Tomatoes	45	20.93
Whole Tomatoes in Bottles	57	26.51
<b>*multiple responses</b>		
<b>Which of Tomato Products have you used (n = 611)</b>		
Tomato Paste	195	90.70
Tomato Sauce	63	29.30
Dried Tomato	56	26.05
Chopped Tomato	39	18.14
Tomato Powder	25	11.63
Tomato Ketch UP	102	47.44
Tomato dry slices	41	19.07
Whole Peel Tomatoes	21	9.77
Whole Tomatoes in bottles	22	10.23
Tomato Juice	47	21.86
<b>What tomato products is used for (n = 468)</b>		
Stew	169	78.60
Soup	115	53.49
Salad	15	6.98
Rice	124	57.57
Sandwich	34	15.81
Snack	11	5.12

Source: Field Survey, 2016

Majority of the respondents were willing to use Tomato Paste (87.91%), followed by Tomato Ketch up (40.44%), tomato juice (30.70%),

tomato sauce (30.23%) while only 17.21% of the respondents were willing to use Tomato Dry Slices. This showed that Tomato Paste was the most patronized in the study area followed by Tomato Ketch up while consumers were least aware of Tomato Powder and Whole Peel Tomatoes.. This supports the findings that Tomato pastes are consumed everyday by many homes [20]. Similarly, order of the most used tomato products in the study area were Tomato paste (90.70%), Tomato Ketch up (47.44%) while the least used products was whole peel Tomatoes (9.77%). Tomato products are majorly used in stew preparation (36.1%), Rice (26.5%), Soup (53.49%), Sandwiches (15.81%) Salad (6.98%) while it was least used in snack preparation (5.12%). This is expected because Tomato is a major component of daily dishes (Ibitoye *et al*, 2009) and it is a common event to use stew in every home around the study area [14].

#### Tomato products Preferred, Consumption pattern and processing potentials

Most of the respondents preferred Tomato paste (86.0%), Tomato Ketch up (40.47%) and Whole Peel Tomatoes in Bottle (3.72%), Dried Tomato and Tomato Powder (3.72%) while the least preferred was the Tomato juice and Sauce (1.40%) (Table3). The reasons attributed to the preference of Tomato paste were the addition of flavor and taste by the paste (35.80%), ease of use (30.23%), affordability (12.56%), availability (11.16%) and storability (10.23%). Availability may be an important reason because products such as Tomato ketch up, sauce and juice are mostly common in supermarkets and most housewives visit the major markets in the purchase of their food items. Tomato paste is by far the most prevalent of all the products especially in urban markets. This implies that there is ready market for tomato paste and there is the need to create awareness for other products in order to enhance their market potentials. Characteristics considered by consumers before they purchase tomato products they prefer includes taste (60.93%), colour (41.86%) and the least is price (26.05%).

Table 3. Tomato products Preferred, Characteristics and Frequencies of purchase

Variable	Frequency	Percentage
<b>Most Preferred Tomato Products</b>		
Tomato Paste	185	86.05
Dried Tomato	4	1.86
Tomato Juice	3	1.40
Tomato Ketch Up	8	3.72
Tomato Powder	4	1.86
Whole Peel Tomatoes in Bottle	8	3.72
Tomato Sauce	3	1.40
<b>Reason for Preference</b>		
Add flavour and taste	77	35.8
Ease of use	65	30.23
Availability	24	11.16
Storable and Preservable	22	10.23
Less expensive	27	12.56
<b>Characteristics desired in tomato product (n = 277)</b>		
Colour	90	41.86
Taste	131	60.93
Price is Ok	56	26.05
*multiple responses		
<b>Frequency of Purchase of Tomato products in Peak season of fresh tomatoes</b>		
Daily	59	27.44
At least once a week	113	52.56
Few times in a month	43	20.0
<b>Frequency of Purchase of Tomato products in Lean season of fresh tomatoes</b>		
Daily	51	23.73
At least once a week	128	59.53
Few times in a month	36	16.74
<b>Prevalent period of purchase</b>		
Peak Period	36	16.74
Lean Period	74	34.42
Both Period	105	48.83
<b>Quantity Purchase of Tomato Product during Peak Period (g)</b>		
70-350	170	79.07
420-700	37	17.21
770-1050	8	3.72
<b>Quantity Purchase of Tomato Product during Lean Period (g)</b>		
70-350	161	74.88
420-700	40	18.60
770-1050	14	6.51
<b>Source of Purchase</b>		
Neighborhood	115	53.49
Urban market	98	45.58
Supermarket	65	30.23
*multiple responses		
<b>Preferred Package for Tomato Products</b>		
Tin Can	73	33.95
Tetra pack	105	48.83
Bottle	22	10.23
Plastic Container	15	6.98
<b>Reasons for Preferred package</b>		
Handy	39	18.14
Better preserved	17	7.91
Consumption safety	125	58.14
Ease of use	34	15.81

Source: Field Survey, 2016

Moreover, 52.56% and 59.53% of the consumers purchased tomato products at least

once a week in the peak and lean season of fresh tomato availability.

This is an indication that more of the consumers purchase the product in the lean season. In the peak season of fresh tomato production, majority of the respondents (79.07%) purchased 70 – 350 grammes of tomato products per week, 17.21% purchased 420 – 700g of tomato products weekly while only 3.72% purchased 770 – 1,050 g weekly. During the lean season, purchase of tomato products by consumers followed a similar pattern to that observed in the peak season. Most of the respondents (74.88%) purchased 70-350g of the products per week; 18.60% and 6.51% purchased 420-700g and 770-1050g respectively. This result implies that regardless of season, respondents are used to consuming tomato products as only a slight difference is seen in the pattern of purchase in both seasons. Findings on the source of purchase of tomato products revealed that 53.49%, 45.58% and 30.23% of the consumers purchase the products from the neighborhood, urban markets and supermarkets respectively. Also, this finding shows that the mostly preferred tomato products usually consumed by respondents were within their reach.

In addition, most consumers preferred tetra pack (48.83%) and tin can (33.95%) as packaging materials for tomato products. Only a few respondents preferred bottles (10.23%) and plastic container (6.98%). This could be due to the changes in packaging technology and enlightenment level of consumers on the health implications of packaging materials. The reason for the preferred packaging materials were safety (58.14%), handy (18.14%), ease of use (15.18%) and better preservation (7.91%).

### Tomato Consumption in the Peak and Lean Season

Findings revealed that household with an average of 5 individuals consume averagely 293.3g of tomato products in the peak season while in the lean season an average of 397.6g was consumed by the respondents (Table 4). There is significant difference in Tomato consumption in the peak and lean seasons of fresh tomato production. This indicates that more tomato products are consumed in the lean

season of tomato production. This shows that despite the fact that there exists similar pattern in the consumption of tomato products by consumers in both peak and lean seasons of fresh tomato supply, differences observed in the quantities consume are significant.

Table 4. Tomato Consumption in the Peak and Lean Season

Variable	Value
Mean peak	293.3
Mean lean	397.6
Standard deviation	421.76251
Mean	-103.70370
Standard error mean	46.86250
T value	-2.213
Sig	0.03

Source: Field survey, 2016

### Socioeconomic Characteristics and Consumption Pattern of Tomato Products

Chi-square results revealed that household size, age and educational level showed a significant relationship with frequency of purchase of tomato products in the peak season (Table 5).

This is an indication that an increase in household size, age and education, leads to increase the frequency of purchase of tomato products.

Furthermore, in the lean season, educational level, household size, income level showed a significant relationship with respondents' frequency of purchase of tomato products.

This result implies that education of the respondents and household size are important factors that determined frequency of purchase of tomato products.

Table 5. Relationship between Socioeconomic Characteristics and Consumption Pattern of Tomato Products

Variables	Group	N	P Value (Peak Season)	P Value (Lean Season)
Frequency of Purchase	Sex	215	0.212	0.625
	Marital Status	215	0.550	0.844
	Age	215	0.024**	0.118
	Educational level	215	0.000***	0.000***
	Household size	215	0.000***	0.006***
	Income level	215	0.647	0.024**
	Monthly Food Expenditure	215	0.103	0.385

Source: Field survey, 2016, Note \*\* significant at 5% \*\*\* significant at 1%

## CONCLUSIONS

Findings revealed that most of the respondents bought Tomato Products regularly in the study area (99.07%). Most of the respondents showed preference towards Tomato paste (86.0%), followed by Tomato Ketch up (40.47%) and Whole Peel Tomatoes in Bottle (3.72%), Dried Tomato and Tomato Powder (3.72%) while the least preferred was the Tomato juice and Sauce (1.40%). Household size, age, educational levels are the factors related to consumption of tomato products in the study area. There is great market potential for processed Tomato products in the study area. However, it is important to create awareness on the other tomato products such as tomato sauce, juice, whole peel tomato in bottles and tomato powder.

## REFERENCES

- [1]Abur, C.C., 2014, An Assessment of Irrigated Tomato Farming on Resource Productivity of Farmers in Vandeikya Local Government Area of Benue State: Application of Technical Efficiency Model. Global Journal of Human Social Science 14(1) 43-49.
- [2]Adenuga, A.H., Muhammad-Lawal, A., Rotimi, O.A., 2013, Economics and Technical Efficiency of Dry Season Tomato Production in Selected Areas in Kwara State, Nigeria. Agris on-line Papers in Economics and Informatics 5(1): 11-19.
- [3]Adenegan, K.O, Adeoye, I.B., Ibidapo, I., 2012, Spatial Price Analysis of Tomatoes in Nigeria. International Journal of Management and Marketing Research. International Journal Of Management And Marketing Research , 5(2): 31-38.
- [4]Adenegan, K.O., Adeoye, I.B., 2011, Price Analysis of Tomato in Rural and Urban Market of Oyo State, Nigeria. International Journal of Agricultural Economics & Rural Development - 4 (2): 90-96.
- [5]Adeoye, I.B., Odeleye, O.M.O., Babalola, S.O., Afolayan, S.O., 2009, Economic Analysis of Tomato Losses in Ibadan Metropolis, Oyo State, Nigeria,

African Journal of Basic & Applied Sciences 1 (5-6): 87-92.

[6]Arah, I. K., Kumah, E. K., Anku, E., Harrison Amaglo H., 2015, An Overview of Post-Harvest Losses in Tomato Production in Africa: Causes and Possible Prevention Strategies. *Journal of Biology, Agriculture and Healthcare*, 5(16): 78-88.

[7]Ayoola, J.B., 2014, Comparative economic analysis of Tomato under irrigation and rainfed systems in selected local government areas of Kogi and Benue States, Nigeria. *Journal of Development and Agricultural Economics* 6(11): 466-471.

[8]Fact Fish 2016, Tomatoes, production quantity (tons) - for all countries. <http://www.factfish.com/statistic/tomatoes%2C%20production%20quantity>, Retrieved on Oct.15, 2017

[9]FAOSTAT 2014, Global tomato production in 2012. Rome, FAO.

[10]Garming, H., 2017, Horticulture: Tomato, Agri benchmark.

<http://www.agribenchmark.org/agri-benchmark/did-you-know/einzelansicht/artikel//tomatoes-are.html>.

Retrieved on Oct.20, 2017

[11] Haruna, U., Sani, M. H., Danwanka, H. A., Adejo, E., 2012, Economic Analysis Of Fresh Tomato Marketers In Bauchi Metropolis of Bauchi State, Nigeria, *Nigerian Journal of Agriculture, Food and Environment*. 8(3):1-8.

[12]Helgilibrary 2017, Tomato Consumption Per Capita in Nigeria.

<http://www.helgilibrary.com/indicators/tomato-consumption-per-capita/nigeria/>, Retrieved on May 10, 2017.

[13]Hurst, W. C., 2010, Harvest, Handling and Sanitation Commercial Tomato Production. Handbook B 1312. CAES Publications. University of Georgia. URL:

[http://www.caes.uga.edu/publications/pubDetail.cfm?pk\\_id=7470](http://www.caes.uga.edu/publications/pubDetail.cfm?pk_id=7470). Retrieved on September 23, 2013.

[14] Ibitoye, D.O., Akin-Idowu, P.E., Ademoyegun, O.T., 2009, Agronomic and Lycopene Evaluation in Tomato (*Lycopersiconlycopersicum* Mill.) As a Function of Genotype. *World Journal of Agricultural Sciences* 5 (S): 892-895.

[15] Naira Brains, 2017, Complete Guide on How to Start Tomato Farming in Nigeria.

<https://nairabrain.com/2016/06/guide-start-tomato-farming-nigeria/> Retrieved on April, 26, 2017.

[16]Nwajiuba, C., 2000, Food Insecurity: An Overview” Paper Presented at the Department of Agriculture Economics, Federal University of Technology, Owerri-Nigeria.

[17] Onyeaghala, A. A.1 , Ijagbone I. F., Kalu O. Chima, 2016, Comparative and quality analyses of different tomato brands sold in major markets in Ibadan, Nigeria, *African Journal of Food Science*, 10(10) 213-226.

[18]Pastuszek, H., 2017, Post-Harvest Loss in Nigerian Tomato Value Chain:

[http://phlcongress.illinois.edu/Presentations/Day1/3\\_SessionC/6\\_Pastuszek.pdf](http://phlcongress.illinois.edu/Presentations/Day1/3_SessionC/6_Pastuszek.pdf), Retrieved on Oct.5, 2017.

[19] Punch (2017). Opinion: New Tomato Policy: Enforcement as litmus test <http://punchng.com/new-tomato-policy-enforcement-as-litmus-test/>Retrieved on April 21, 2017

[20]Tambo, J.A., Gbemu, T., 2010, Resource-use efficiency in tomato production in the Dangme West District, Ghana, Paper presented at the Conference on International Research on Food Security, Natural Resource Management and Rural Development, ETH Zurich, September 14 - 16, 2010.

[21]This Day, 2017, Govt’s Policy on Tomato: An Appraisal.

<https://www.thisdaylive.com/index.php/2017/04/23/govts-policy-on-tomato-an-appraisal/>Retrieved on Oct.13,2017

