



COSTS AND RETURNS OF SWEET MELON MARKETING IN BAUCHI AND GOMBE STATES, NIGERIA

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ABSTRACT

The study examined the costs and returns of wholesale and retail sweet melon marketers in Bauchi and Gombe States, Nigeria. Multi-stage sampling technique was used to select 300 sweet melon and water melon marketers from 18 markets, 135 marketers were selected from Bauchi State and 165 from Gombe State. Data were collected using structured questionnaires. The result indicated that wholesale sweet melon marketers received the higher net income of ₦ 629.16 and the total revenue of ₦ 6163.68 in scarcity period, whereas the higher return per capital invested of 0.51 was recorded in surplus period. Inconsistence and poor prices ranked 1st, poor transportation facilities ranked 2nd and perishability of the products ranked 3rd constituted the major problems against sweet melon marketing in the study area. Conclusively, sweet melon marketing was found to be profitable in both wholesale and retail categories in all seasons. The study therefore, recommended that Government and stakeholders should ensure the provision of the above mentioned and encourage the marketers to make better use of such.

Keywords: Costs, Net income, Retails, Returns, Wholesale.

INTRODUCTION

Sweet melon (*Cucumis melo L.*) is a warm, long season crop adaptable to all climatic zones. Mature fruits of sweet melon cultivars are usually consumed fresh for the sweet and juicy pulp. The pulp is also mixed with water and sugar, or with milk, and sometimes served as refreshing drink or made into ice cream. Immature fruits of non-sweet types, including snake, are used as a fresh, cooked, or pickled vegetable and are also stuffed with meat, rice and spices or fried in oil (Adamu, 2015). The fresh produce of the world production represents 9% international trade, 30% industrial and the remaining 61% covers the domestic markets (Adamu, 2015). Abdullahi (2015) reported that marketing costs are the actual expenses incurred in the process of marketing. Marketing costs comprises of the actual expenses incurred in the performance of the marketing functions as the commodity moves from the farm to the ultimate consumer. However, these costs may include: the cost of assembling, processing costs, storage costs, sales promotion and advertising costs, distribution cost, and cost of transportation (terminal and transfer), handling charges, marketing charges, cost of packaging, taxes and levies. Marketing costs are the actual expenses incurred in the marketing function as the commodity moves from producers to the ultimate consumers. In the process of determining the costs and returns, the study examined the marketing systems of Sweet melon and Water melon in the study area and found that marketers were engaged in performing different marketing functions at different stages which include physical functions (assembling;



preservation and storage, loading and offloading; transportation; sorting; washing; peeling and sanitation) in order to provide the commodity to consumers in a safely and healthy conditions. Other marketing functions performed by the respondents include exchange functions such as buying and selling as well as facilitating functions such as financing risk bearing, grading and market intelligence. These functions add value to the product and they require inputs in the process of marketing the Sweet melon and Water melon in the study area. All these mentioned functions are conducted in order to ensure the distribution and deliverance of good and quality products to the end consumers timely, and at affordable price, which as such constituted the variable and the fixed cost in the marketing of sweet melon and water melon in the area.

The broad objective of the study was to examine the costs and returns of wholesale and retail sweet melon marketers in Bauchi and Gombe States, Nigeria. The specific of objective was to identify the constraints associated with sweet melon marketing in the study area.

MATERIALS AND METHODS

The Study Area

Bauchi State lies between Latitudes $10^{\circ} 17'$ and $11^{\circ} 00'N$ and Longitudes $9^{\circ} 45'$ E and $11^{\circ} 12'E$. It has a land area of 49,119 km² and a projected population of 6, 16496 inhabitants with a 2.8 percent annual growth rate of the population (NPC, 2006). The climatic condition of the state is characterized by two distinct seasons dry and wet. The wet season begins from May and ends in September, and the dry season starts in October and lasts up to April with the mean annual rainfall that ranges from 600mm to 1300mm, while the temperature ranges from 18.5⁰C to 32⁰C as minimum and maximum, with April as the hottest and January as the coldest month respectively (BSADP, 2009). Gombe State lies between Latitudes $10^{\circ} 16'$ and $11^{\circ} 00'N$ and Longitudes $11^{\circ} 00'E$ and $11^{\circ} 11'E$. It has a land area of 20,265 km² and a projected population of 3,159,693 people (NPC, 2006) census with a 2.8% annual growth rate of the population. The climatic condition of the State is characterised by two distinct seasons dry and wet. The wet season begins from April and ends in October, and the dry season starts in November and last up to March. The mean annual rainfall ranges from 600mm to 1200mm, with the minimum and maximum temperatures of 22.7⁰C and 33.5⁰C, respectively, (GOSEEDS, 2010).

Sampling Techniques

A multi-stage sampling technique was used. Stage one involved the purposive selection of three (3) main local government Areas (LGAs) from Bauchi and Gombe States. The second stage involved purposive selection of three (3) markets from each Local government Area (LGA), making 18 markets and the last stage involved simple random selection of respondents from these markets. In all, 300 sweet melon marketers were randomly selected from a sample frame of 1,056 collected from the selected markets of the study area.

Method of Data Collection

The data for this research were collected from wholesale and retail Sweet melon marketers using structured questionnaires. The data were collected at different period's i.e., (at different marketing seasons) where surplus period ranged from the months of September to December, Balance period from May to August as well as scarcity period that ranged between Januarys to April of the year calendar.

Method of Data Analysis

The enterprise budgetary analytical approach called the budgeting model technique was employed so as to estimate costs and returns as well as net profit in the marketing of sweet melon as applied by (Adamu *et al.*, 2015). Specification of the model is as follows:

$$TC = TFC + TVC \quad \dots (1)$$



NI = TR – TC ... (2)

RCI = PROFIT /TC ... (3)

where;

- TC = Total cost
RCI = Return on capital invested
NI = Net income
TVC = Total variable cost
TFC = Total fixed cost
TR = Total revenue

The depreciation of fixed items was also used in data analysis. The Total Fixed Costs involved the depreciation on fixed assets and for the purpose of this study straight line method (SLM) was used to determine depreciation value of each of fixed items, such as wheelbarrow, drum/bucket, knife, shade, etc.;

SLM = Pp – S/L ... (4)

where;

- Pp = Purchase price
S = Salvage value
L = Useful life span

The descriptive statistics (frequency, percentages, means, standard deviation and ranking) were used to analyse the constraints associated with sweet melon marketing in the study area as applied by (Sajo, 2015).

RESULTS AND DISCUSSION

Costs and Returns of Wholesale Sweet Melon Marketers

The result in Table 1 revealed that the total variable cost of ₦2, 852.01, ₦3, 865.50 and ₦4, 917.19 constitute the highest percentage of the total cost incurred by wholesale Sweet melon marketers in respect of surplus, balance and scarcity periods which constituted about 89.22%, 89.16% and 88.84%, respectively. The fixed cost of ₦345.00, ₦519.28 and ₦617.33 which accounted for only 10.79%, 11.84% and 11.16% were, respectively, recorded in respect of surplus, balance and scarcity periods. This is in line with the findings of Adamu et al. (2015), Mohammed et al. (2012) and Atman et al. (2007) that total variable cost constituted the highest of the overall marketing cost in their separate studies compared to the fixed cost. This is contrary to the findings of Sajo (2015) that variable cost covered almost 100% of the total cost with no fixed cost. The result further indicated that marketers obtained a total revenue of ₦6,163.68 in scarcity period and of ₦3,665.18 in surplus period. This might be as a result of higher prices of the commodity during the scarcity period which increase the price while the availability in the surplus lead to falling down of price as indicated by the demand and supply law. The net income of ₦629.16 obtained was higher in scarcity period and the return per capital invested of 0.51 was found to be higher in surplus period, whereas in balance and scarcity each recorded the lower return/capital invested of 0.11.



Table 1: Costs and Returns of Wholesale Sweet Melon Marketers

Variables	Surplus period		Balance period		Scarcity period	
	Value ₹/pyramid	(%)	Value ₹/pyramid	(%)	Value ₹/pyramid	(%)
Acquisition cost	2211.89	69.19	3007.50	69.59	3835.64	69.30
Transportation	163.47	5.11	239.14	5.45	321.46	5.81
Gift / Consumption	77.59	2.43	114.20	2.61	151.32	2.73
Taxes/levies	57.67	1.80	57.67	1.32	57.67	1.04
Commission	18.10	0.57	18.10	0.41	18.10	0.33
Rent	100.31	3.14	100.31	2.29	100.31	1.81
Loading/Offloading	31.98	1.00	47.36	1.08	62.46	1.13
Water	8.50	0.27	12.03	0.27	16.40	0.30
Detergent	8.23	0.26	11.88	0.27	16.37	0.30
Grasses	46.13	1.44	63.88	1.46	81.77	1.48
Sack	87.49	2.74	135.46	3.09	183.92	3.32
Washing labour	13.71	0.43	19.82	0.45	27.33	0.49
hand globes	26.94	0.84	38.10	0.87	44.44	0.80
Total variables cost	2852.01	89.22	3865.50	89.16	4917.19	88.84
Fixed Cost						
Shade/Store	107.10	3.35	144.80	3.30	173.85	3.14
Table/Bench	51.63	1.62	77.05	1.76	99.56	1.80
Bucket	16.92	0.53	25.47	0.58	32.17	0.58
Wheel barrow	95.42	2.99	158.66	3.62	170.73	3.09
Trampoline	34.78	1.09	50.82	1.16	64.39	1.16
Lantern lamp	17.94	0.56	28.82	0.66	36.08	0.65
Umbrella	13.87	0.43	22.98	0.52	28.08	0.51
Broom	7.01	0.22	10.68	0.24	12.47	0.23
Total fixed cost	345.00	10.79	519.28	11.84	617.33	11.16
Total cost	3197.00	100.00	4384.78	100.00	5534.52	100.00
Total revenue	3665.18		4845.59		6163.68	
Net income (NI)	469.00		460.81		629.16	
Return/capiatal investment (RCI)	0.51		0.11		0.11	

Note: Weight per one sweet melon in kilogram; large = 1.30kg; medium = 0.54kg; small = 0.26kg
 Source: Field survey, 2016-2017

The higher net income in scarcity period may be attributed to higher price of the commodity during the period as the commodity price is high as a result of scarcity of the product, hence marketers do everything possible to maximise profit due to less competition in the market. The return per capital invested of 0.51 indicated that in every naira in surplus period marketers realised a return of 0.51k which is higher during the surplus period due to availability of the product and low price which make the commodity easier for consumers to buy more, hence suppliers gets more profit. The return per capital invested of 0.51 is higher than the findings of Adamu *et al.* (2015) with 0.30, Mohammed *et al.* (2012) with 0.13, Adesina (2013) with 0.36, Usman (2006) with 0.14 and Sajo (2015) with 0.16. The result is also lower than 0.61 as found by Atman *et al.* (2007).

Costs and Returns of Retail Sweet Melon Marketers

Table 2 shows the cost and returns in respect of retails Sweet melon marketers. The result indicated that total variable cost recorded highest amount of the entire Sweet melon



marketing cost with ₦3,658.40, ₦4,470.00 and ₦5,698.64 in respect of surplus, balance and scarcity periods respectively. Scarcity period recorded the highest percentage which constituted 82.79% of the total variable cost, followed by balance period with 81.17%, while 78.88% was obtained in surplus periods.

Further to Table 2, the total fixed cost of ₦978.48 (21.13%), ₦1037.36 (18.83%) and ₦1189.85 (17.26%) were also obtained in respect of surplus, balance and scarcity periods, respectively. This is also similar to the findings of Adamu *et al.* (2015), Mohammed *et al.* (2012), Bakari and Usman (2013) and Atman *et al.* (2007) that total variable cost constituted the highest of the overall marketing cost in their separate studies. This is contrary to the findings of Sajo (2015) and Mohammed and Adamu (2012) that variable cost covered almost 100% of the total cost with no fixed cost. The result further revealed that marketers recorded the highest total revenue of ₦7, 441.45 in scarcity period followed by ₦5, 857.89 in balance period with only ₦4, 846.89 obtained in surplus period. The higher total revenue recorded by marketers during the scarcity period might not be unconnected with the less supply of the commodity in that period which lead to higher demand by consumers hence increased the price up which subsequently increase the total revenue obtained by the marketers. The result also showed that retail Sweet melon marketers obtained highest profit and returns per capital invested of ₦552.96 and 0.08 in scarcity period, and recorded low net income and less returns per capital invested of 210.01 and 0.04 in surplus period. The return per capital invested of 0.08 indicated that marketers gained 8k in every naira they invested in Sweet melon business which is less than 0.28 obtained by dried tomato marketers in Kano State as reported by Mohammed and Adamu (2012).

Constraints to Sweet Melon Marketing

The problems associated with Sweet melon marketing in the study area were presented in Table 3. These problems include inconsistency and poor prices; inadequate storage facilities; inadequate processing facilities; poor transportation facilities and perishability of the products.

The inconsistency and poor price of the products was found to be the major problem associated with the marketing of sweet melon as its ranked 1st and have a mean score of 2.31. Majority of the marketers faced this problem as a result of perishability and bulky nature of the products as well as high level of competition due to free entry and exit of the participants in the market. This may result to fluctuation and poor prices of the commodity as the marketers offered their products to buyers at any given price in order avoid the stated problems as the commodity is seasonal, perishable and bulky in nature. This is in line with the findings of Yohanna (2006) that commodity price fluctuation (ranked 3rd.) was found to be among the constraints affecting the marketing of orange in Bauchi metropolis, Bauchi State of Nigeria.



Table 2: Costs and Returns of Retails Sweet Melon Marketers

Variables	Surplus period		Balance period		Scarcity period	
	Value ₦/pyramid	(%)	Value ₦/pyramid	(%)	Value ₦/pyramid	(%)
Acquisition cost	2512.28	54.18	3316.45	60.22	4355.37	63.23
Transportation	370.00	7.98	374.09	6.79	433.47	6.29
Gift/consumption	132.71	2.86	136.68	2.48	158.28	2.30
Taxes/Levies	33.97	0.73	33.97	0.62	33.97	0.49
Commission	17.69	0.38	17.69	0.32	17.69	0.26
Rent	73.23	1.58	73.23	1.33	73.23	1.06
Loading/offloading	71.92	1.55	66.48	1.21	77.60	1.13
Water	31.70	0.68	32.88	0.60	38.37	0.56
Detergent	29.88	0.64	31.36	0.57	36.29	0.53
Grasses	112.18	2.42	110.33	2.00	155.00	2.25
Washing labour	41.87	0.90	37.27	0.68	43.39	0.63
Polythene	171.68	3.70	175.61	3.19	203.13	2.95
Oil	59.29	1.28	63.69	1.16	72.85	1.06
Total variable cost	3658.40	78.88	4470.00	81.17	5698.64	82.79
Fixed Cost						
Shade/Store	283.99	6.13	316.59	5.75	360.47	5.33
Table/Bench	210.73	4.55	215.28	3.91	252.42	3.66
Bucket	89.46	1.93	94.73	1.72	106.50	1.55
Knife	55.51	1.20	58.54	1.06	67.71	0.98
Peeling machines	96.19	2.08	104.04	1.89	108.69	1.58
Spoon	28.03	0.61	29.74	0.54	34.57	0.50
Lantern lamp	96.37	2.08	99.81	1.81	125.46	1.82
Umbrella	88.57	1.91	89.31	1.62	97.95	1.42
Broom	29.63	0.64	29.32	0.53	36.08	0.52
Total fixed cost	978.48	21.13	1037.36	18.83	1189.85	17.26
Total cost	4636.88	100.00	5507.36	100.00	6888.49	100.00
Total revenue	4846.89		5857.89		7441.45	
Net income	210.02		350.53		552.96	
Return/capital investment	0.04		0.06		0.08	

Note: Weight per one sweet melon in kilogram; large = 1.30kg; medium = 0.54kg; small = 0.26kg
 Source: Field survey, 2016-2017

Table 3 further reveals inadequate storage facilities, fruits and vegetables’ such as sweet melon which is bulky and perishable in nature with high moisture content; their handling and storage tend to be difficult as a result of poor storage facilities. The result indicated that storage problem ranked the 7th faced by the marketers with the mean score of 1.82, implying that the respondents incurred considerable loses of their produce which invariably reduces their income in the business. This agrees with the works of Taphee *et al.* (2015); Adamu *et al.* (2011); Sajo (2015) and Mohammed *et al.* (2012) who reported inadequate storage facilities among the most severe problems which ranked 2nd; 3rd; 3rd and 4th, respectively.

Most fruits and vegetable marketing in Nigeria lacks adequate processing and preservation facilities specifically, food processing plants are virtually limited or even none in



existence, with the exception of few flour mills in Sokoto and oil mills in Gusau as reported by Mohammed (2010) is a serious problem for effective processing and preservation of agricultural produce. As shown in Table 3, sweet melon marketers faced with problem of inadequate processing facilities ranked 8th with the mean score of 1.77. Thus, absence of good and affordable processing facilities may result to prompt selling of the commodity at any given price and time in order to reduce these losses due to perishable and bulky nature of the products. Otherwise, substantial part of the produce may be lost sometimes even before getting to the market for selling. This is in line with studies of Adamu *et al.* (2015), Mohammed *et al.* (2014), and Sajo (2015) that fruits and Vegetables marketers in their study areas recorded problem of inadequate processing facilities as one of the major constraint affecting their respondents and were found to ranked 1st, 3rd and 4th, respectively.

Poor transportation facilities were reported. An efficient transport system is critically important to efficient agricultural produce marketing. If transport facilities or services are of poor quality or extensive, then marketers will be at a disadvantage when attempt to sell their produce. This may lead to increase in the marketers cost of transport which invariably increase his marketing cost and this increase will lower his total revenue and net profit at the end. Poor transport facilities such as impassable roads or slow and poor transport services can lead to produce loses as a result of perishable and bulky nature of Sweet melon especially if the commodity is going to be transported to distance place. Table 3 indicated that majority of the respondents faced the problem of poor transportation facilities (ranked 3rd) and recorded the mean score of 2.11. The result is also similar to the studies of Adamu *et al.* (2015), Taphee *et al.* (2015), Sajo (2015), Mohammed *et al.* (2014), and Yohanna (2006) who reported that fruits and vegetables marketers identified lack of good transportation facilities as part of the major problems faced by their respondents.

Table 3: Constraints to Sweet Melon Marketing in Gombe and Bauchi States (n = 300)

Constraints	Constraint levels			Total *	Mean scored	SD	Rank Order
	Very serious 1	Serious 2	Not serious 3				
Inconsistence and poor prices	20	166	114	694	2.31	0.59	1st
Inadequate storage facilities	84	185	31	547	1.82	0.59	4th
Inadequate processing facilities	118	132	50	532	1.77	0.71	5th
Poor transportation facilities	40	186	74	634	2.11	0.61	2nd
Perishability of the products	74	186	40	566	1.89	0.61	3rd

*Multiple responses existed; SD = Standard deviation

Source: Field survey 2016-2017

The bulky and perishable nature of Agricultural produce especially fruits and vegetables such as sweet melon and water melon forced its marketers not to handle the commodity for longer period of time. This may be attributed to poor transportation services, lack of good storage and preservation facilities in our marketing system, hence this compelled the marketers to dispose the commodity at any given price in order to reduce the loses as a result of produce spoilage when handled for more than required period. The result in Table 3 indicated that perishability of produce is one of the factors affecting the smooth marketing and distribution of Sweet melon in the study area. The problem was found to rank the 6th with a mean score of 1.89 as recorded. This agrees with the findings of Taphee *et al.* (2015); Adamu *et al.* (2011), Sajo (2015), Mohammed *et al.* (2014), and Yohanna (2006) who separately reported the



perishability problem was among the most serious problems affecting the marketing of fruits and vegetables in their study areas. The result is contrary to the work of Adamu *et al.* (2015) who did not report it as part of the respondents' problems.

CONCLUSION AND RECOMMENDATIONS

The study concluded that sweet melon marketing was profitable in both wholesale and retail categories with wholesale marketers receiving the higher net income and the higher returns per capital invested in scarcity and surplus periods, respectively. Inconsistence and poor prices; poor transportation facilities and perishability of the products constituted the major problems to sweet melon marketing in the study area. The study recommended that market union leaders, government and other stakeholders should assist and encourage marketers in providing, procuring and using such.

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