ASSESSMENT OF WATERMELON MARKETING IN UMUAHIA AREA OF ABIA STATE, NIGERIA.

Osondu, K.R. and Mejeha, R.O
Department of Agricultural Economics, Michael Okpara University of Agriculture, Umudike
E-mail:osondu.rosemary@mouau.edu.ng

ABSTRACT
The study assessed the marketing of watermelon in Umuahia Area of Abia state, Nigeria. Primary data were used for this study. The primary data were collected from a random sample of 120 traders using structured questionnaire and interview. Data collected were analyzed using descriptive statistics, technical and economic efficiency and multiple regressions. The results obtained showed that the mean age of the marketers was 40.42, while married women were mostly in the market with high household size, and 6-10 years of marketing experience. The markets were technically and economically efficient, but two of the markets in Umuahia South Local Government Area were technically inefficient. The income, marketing experience, price, and capital expense were significant at 10%, 1%, 5%, and 1% respectively as factors that enhanced the value traded. The problems experienced in the study area were high rate of spoilage due to lack of storage facilities, high transportation cost, high marketing cost and lack of access to credit and lack of access to relevant information as regards to watermelon marketing.
KEYWORDS: watermelon, marketing, UmuahiaAbia State, Nigeria

INTRODUCTION

Watermelon *CitrullusLanatus* is an important seasonal fruit vegetable belonging to the family Cucubitaeace. It originated from South Africa, and it is distributed throughout the Mediterranean (Wikipedia 2014). With an annualgrowth rate of 4.8 percent, watermelon production of 95.3 million tonnes in 2004accounted for 35 percent of global tropical fruit production. There are over one thousand two hundred (1200) varieties of watermelon worldwide, and 200- 300 varieties are grown in USAand Mexico(Tindall, 1983).Until 1980, China ranked first in worldwide watermelon production with 70 million tonnes production and Turkey currentlyranks second with 4,044,184 million tonnes (Wikipedia, 2014).There are eighteen main types of watermelon produced and marketed in Nigeria(Tindall, 1983).

Nutritionally, watermelon is highly rich in essential nutrients like vitamins and minerals, fat and oil as well as protein and also has high amount of vitamin A and vitamin C in the form of disease fighting beta- carotene. Potassium is also available, which is believed to help control blood pressure and possibly prevent strokes (VREC, 2008).After shelling and grinding watermelon, the seeds are used for thickening sauces. Watermelon pulp contains carotenoids, including lycopene. (*Perkins-Veazie et al. (2006*). The global consumption of watermelon is higher than any other cucurbiaece crops (Onyemauwa, 2010)

Despite the importance of petroleum in Nigeria economy since 1970's Nigeria is still basically agrarian economy. Agriculture contributed thirty seven and half percent (37.5%) of Gross Domestic Product (GDP) in 1993 (NBS, 2014). Agriculture plays a key role in supplying food for population and raw materials for industries. Of the estimated population of hundred and fifty million people in Nigeria (NPC, 2006) about eighty five percent (85%) live in the rural areas majority of them derive their livelihood from agriculture and related activities.

Watermelon like other agricultural produce requires structured and organized markets to distribute the commodity to the final consumers. There has been a varied view of what the role of marketing should be. Essentially, the basic role of marketing is to ensure sustained growth in the economy and the improvement of standard of living of the people (Kohls and Uhl, 1990). According to Onyebinama (2000) marketing is the process by which a uniform price is established in the market. Marketing occupies a critical role in the economy growth (Ohakim, 1994).

The marketing of horticultural products involves many practices and operations. Sequentially, the major practices are: harvesting techniques, the grading and sorting of crops and the packing, transport, storage, processing, distribution and selling of products. These are the mechanics of marketing(FAO,1991). A good crop should give five hundred (500) marketable fruits per acre with an average weight of twenty (20) pounds per fruit.

As important as watermelon is, there is limited information concerning how watermelon is distributed and marketed, especially in Umuahia north and south LGA's. This lack of information will therefore militate against prospective researches in watermelonmarketing. This study is designed to fill this gap by assessing watermelon marketing in Umuahia north and Umuahia south LGAs. The objectives of the study is to determine the socio-economic characteristics of the marketers, determine marketing efficiency, determine factors influencing watermelon sold, and identifying problems facing watermelon marketers in the study areas .

METHODOLOGY

This study was done in UmuahiaNorth and South local Government areas of Abia State. Umuahia

north and south LGAs are located between latitude 5.5250°N, and 7.4922°E and longitude 5.4947°N, and 7.4165°E, respectively. The study area is bounded by Bende local government area in the north, Isiala – Ngwa in the south, Ikwuano LGA in the east, and Obowo and Ihitte Uboma LGAs of Imo State in the west. The population of Umuahia north and south LGAs according to the 2006 population census were 223, 134 and 138,570, respectively. The major occupation of the people is farming (NPC, 2006). The six markets purposively selected were Umuahia main market, Nkwoegwu, Orieugba in Umuahia north, Apumiri, Ahiaukwu Olokoro and Aforiheji in Umuahia south LGA. These markets were selected because they are the major markets in Umuahia town. The sampling frame of 410 watermelon marketerswere obtained from the fruits and vegetables traders' association. Finally, 60 wholesales and 60 retailers were randomlyselected from the list of markets studied above, giving a total of one hundred and twenty (120) respondents.

DATA ANALYSIS

The descriptive statistics, economic and technical efficiency were used to analyze the efficiency of watermelon marketing, while multiple regression was used to analyze the factors affecting the watermelon marketing in the study area.

Odii and Obih (2000) gave the formula for marketing efficiency as:

Technical efficiency =

$$\frac{\text{Total quantity of watermelon traded (heaps)}}{\text{Total cost (\#)}}$$

And

Economic efficiency as: $= \frac{\text{total revenue (\#)}}{\text{Total cost (\#)}}$

The implicit form of regression model is stated as:

Y = F(X1, X2, X3, X4 X5, X6, X7)

Where Y = (the quantity of watermelon sold) dependent variables

(X1 – X7) = (factors affecting the quantity of watermelon traded) independent variables.

X1 = Age (in years)

X2 = level of education (in years)

X3 = marketing experience (in years)

X4 = income (#)

X5 = household size (no of persons under the same roof)

X6 = price (#)

X7 =capital expense (#).

The four functional forms namely: linear, exponential, semi log and double log functions were tried. Linear function was chosen as the lead equation based on the coefficient of multiple determinations(R^2), F – Statistics and conformity of signs of the coefficient with *a priori* expectation.

RESULTS AND DISCUSSION

The socio economic characteristics of the respondents were presented in Table 1. Table 1 showed that 82% of the watermelon marketers were at most forty years old. The mean age of the marketers was 40.42. This implies that the majority of the traders were still young. Being young, traders are still energetic and can take risk. Females also dominated the markets, and majority of them were married (80.8%), with high household size of 6- 10. The study also showed that 94% of the traders completed primary school education with 6-7 years marketing experience in watermelon business. This shows that majority of respondents were fairly literate; they were able to keep financial records of their business, and other relevant information necessary for watermelon business.These findings are consistent with the findings of Onyemauwa(2010)and Kaing, (2013). The study further shows that 72% of the traders financed their business from their personal savings, 13% obtained funds from friends and relations, 8% got bank loans while 4% obtained fund through market union. Financial assistance in the form of aids and grants is pertinent to support marketers. The study equally showed that 95% of the marketers led an income range of #0-199,999. 3.33% had between #200,000-#399,999. The mean income of the respondents are #90,203.00.This indicates that majority of the marketers were low income earners. The major constraints to watermelon marketing include fruit spoilage experienced (75%), high transportation cost encountered by (45%) of the respondents, (34%) had high marketing cost while 7% and 13% faced lack of demand and small fruit size respectively.

Table1: Socio – economic characteristics of the market

Socio economic characteristics	Frequency	Percentage (%)
Age (Year)		
20-29	17	14.17
30-39	38	31.67
40-49	43	35.83
50-59	21	17.50
60-69	1	0.83
Gender		
Male	14	11.67
Female	106	88.33
Marital status		
Single	8	6.67
Married	97	80.83
Divorced	1	0.83
Widowed	14	11.67
Household size		
1-5	33	27.5
6-10	73	60.83
11-15	14	11.67
Educational status		
No formal education	7	5.83
Primary school completed	70	58.33
Secondary school completed	19	15.83
Tertiary institution	6	5.00
Marketing Experience (Years)		
1-5	58	48.3
6-10	49	40.83
11-15	10	8.33
16-20	3	2.50
Source of fund		
Personal savings	86	71.7
Friends and Relations	15	12.5
Bank loan	10	8.33
Market union	5	4.20
Others	4	4.00
Income level (Naira)		
0 -199,999	114	95.00
200,000-399,999	4	3.33
400,000- 599,999	1	0.83
600 000- 799,999	1	0.83
Marketing Constraints		
Fruit spoilage	90	75
Transportation	55	45.55
High marketing cost	41	43.17
Lack of demand	8	6.66
Small in size	15	12.5

Source: field survey 2010

The resultin **table 2** below shows the efficiency of watermelon marketing. The study shows that two of the markets were technical inefficient, while the rest of the markets were efficient. This inefficiency maybe due to high transportation costincurred by the watermelon traders in Umuahia south,or as a result of distribution channels.

Table 2: Determination of Technical and Economic Efficiency of watermelon marketing

Name of Market	Technical Efficiency	Economic Efficiency
Umuahia main market	2.10 heaps(#)	3.19 (#)
Nkwuegwu market	1,55) heaps(#)	2.49(#)
Orieugba market	1.46 heaps(#)	2.57(#)
AhiaukwuOlokoromarket	0.72 heaps ((#)	2. 97 (#)
Apumiri market	0.65 heaps (#)	2.30 (#)
Aforiheji market	1.29 heaps (#)	2.39 (#)

Source: field survey 2010

The factors affecting watermelon marketing is shown in table 3. The result of the analysis revealed that income of the marketers and marketing experience were positive and significant at 1% and 10% respectively,while price and capital expensewere negative and significant at5% and 1% respectively. This impliesthat, as price and capital expense of watermelon increased, thequantity of watermelon sold decreased and vice versa.

The linear function was chosen as the lead equation based on the R^2 coefficient of multiple regression coefficient and conformity of the signs of the coefficient with a prior expectation.

Table 3: Factors affecting the quantity of watermelon sold

Variables	Linear +	Exponential	Semi log	Double log
Constant	-11.513	**3.556**	-981.345	-9.81
	(-0.224)	(6.688)***	(-1.923) *	(-0.779)
X1 Age	0.675	0.12	81.209	0.288
	(1.201)	(2.094)**	(1.241)	(1.782)*
X2 Education	1.000	0.10	1.439	0.008
	(0.814)	(0.755)	(0.036)	(0.83)
X3 Experience	2.033	0.003	29.413	0.76
	(1.624)*	(0.209)	(1.129)	(1.176)
X4 Income	2.345	0.006	195.198	0.831
	(40.900)***	(10.064)***	(8.688)***	(14.949)***
X5 Household size	-1.290	-1.290	47.100	0.003
	(-0.261)	(-0.261)	(-1.033)	(0.25)
X6 Price	-0.130	-0.130	-31.707	-0.115
	(-1.914) *	(-1.914) *	(-0.572)	(-0.838)
X7 Capital expense	-0.200	-0.200	-63.651	-0.403
	(-2.942)***	(-2.942)***	(-1.678)*	(-4.307)***
R^2	0.965	0.757	0.677	0.874
F=Ratio	432.447***	49.480***	31.183***	103.029***

Source: field survey 2010

CONCLUSION AND RECOMMENDATIONS

Linear function gave the best fit with R^2 =96.5%.The watermelon marketing in Umuahia market, Nkwoegwu, AforIheji and Orieugba markets were both technically and economically efficient. Apumiri and Ahia-ukwuOlokoro markets in Umuahia south were technically inefficient, but economically efficient.

Marketing experience, income, price and capital expense of watermelon marketing were the significant variables affecting watermelon business in Umuahia area. As the price and capital expense of watermelon increased, the quantities of watermelon sold decreased.

The main problems facing watermelon marketing in the study areas were high fruits spoilage, high transportation cost, and lack of demand, small fruits size and lack of capital.

Effective storage facilities should be provided in the markets, provision of good road network to cut down on transportation cost, and financial assistant in the form of loans or grants to encourage the marketers of watermelon should be provided.

REFERENCES

Food and Agriculture Organization (1991). Horticultural Marketing- A Resource and Training manual for Extension Offers http://www.fao.org/docrep/s8270e/s8270e01.htm. Retrieved 21th Jan, 2016

Food and Agriculture Organization (2001). Crop Water Information: Watermelonwww.fao.org/nr/water/cropi

nfo:-watermelon.html. Retrieved 29th June, 2014

National Population Commission (2006).En.wikipidia.org/wik/umuahianorthandsouth. Retrieved 30th June, 2014.

Kohl, R.L., and Uhls, J.N. (1990). Marketing of Agricultural Products 7th(ed) Mac Millan

National Bureau of Statistics (2014)www.Nigerianstat.gov.ng/sectorstat/sector/Agriculture. Retrieved 29th June, 2016

Lipsey, R.G. and Christal, A.K. (1997). An Introduction to Positive Economics. Oxford: London

Odil M. and Obil U. (2000). Optimizing Cassava Marketing Margin and Efficiency for Agricultural Development in the 21stCentury proceeding of National Conference in Honor of Prof. Mathin O. Ijere. Held at MOUAU Abia State.

Ohakim, G. (1994) Marketing Imperatives for Rural Industrialization

Onyebinama (2000). Economic and production management for Agriculture. Alphabet Nig. Publisher: Owerri.

Onyemauwa C.S. (2010). Marketing Margin and Efficiency of Watermelon Marketing in Niger Delta Area of Nigeria in Kaing P.E. (2013). Marketing and Determinants of Net Return of watermelon marketing in YenagoaBayelsa State of Nigeria

Perkins-Veazie, P., Collins, J.K., Davis, A.R., and Roberts, W. (2006).Carotenoid content of 50 watermelon cultivars *Journal of Agriculture and Food Chemistry*54 (7): 2593

Tindall, HD. (1983). Vegetables in the tropics

Vegetable Research and Extension. VREC (2008) Icebox Watermelonshttp://agsyst.wsu.edu/Watermelon.html. Retrieved 24th Jan. 2016

Kaing, P.E. (2013). Marketing and Determinants of Net Return of watermelon marketing in YenagoaBayelsa State of Nigeria.

www.thekitchn.com/18varietiesofwatermelon.Retrived30th June, 2014