Research Article

iMedPub Journals
www.imedpub.com

Journal of Plant Sciences and Agricultural Research
ISSN

2021
Vol.5 No.4:4456

Snail Marketing as a Means of Rural Livelihood in Ondo State, Nigeria

Ijigbade J O[1*], Owoeye R S[2], Johnson S B[3]

[1]Department of Agricultural Technology, Rufus Giwa, Polytechnic, Owo, Ondo State, Nigeria

[2]Department of Agricultural Economics and Extension Services, Ekiti State University, Ado-Ekiti, Ekiti State, Nigeria

[3]Department of Agricultural Extension and Management, Rufus Giwa Polytechnic, Owo, Ondo State, Nigeria

***Corresponding author:** Ijigbade J O, Department of Agricultural Technology, Rufus Giwa, Polytechnic, Owo, Ondo State, Nigeria, E-mail: ijigbadejustin55@gmail.com

Received date: June 1, 2020; **Accepted date:** August 20, 2021**; Published date:** August 30, 2021

Citation: Ijigbade J O (2021) Snail marketing as a means of rural livelihood in ondo state, Nigeria. J Plant Sci Vol.5 No.4.

Abstract

This study was carried out to analyse marketing of snails as a means of rural livelihood in Ondo State, Nigeria. Data were collected from one hundred and twenty (120) snail marketers through a multistage sampling technique using a pre-tested questionnaire. Descriptive statistics, gross margin analysis, Gini coefficient and Lorenz curve were employed to analyse data collected from the field survey. Results from the study showed that majority (95.00%) of the respondents were still in their economically active age with female household accounting for 62.50% of the total sample. Majority (66.67%) of the marketers had married with an average household size of 6 members. Findings also revealed that majority (71.67%) of the respondents spent at least 6 years in schools with an average of 7 years experience in the business. From the study, 36.67% of the marketers sold at the local markets, 32.50% sold their snails in urban markets while the rest 30.83% explored roadside market to sell their snails. Only half (50%) of the respondents belonged to marketing association in the study area. The cost and return analysis revealed that a snail marketer made an average gross margin of ₦82,340.00 and net profit of ₦81,120.00 respectively per marketing cycle. The profitability ratio conducted shows that snail marketing is profitable business with a capital turnover of 1.32 and return on investment of 31.89% per cycle per marketer. Based on these results, it is recommended that policy interventions that will facilitate provision of soft loan to the marketers without collateral should be put in place so that income inequality can be reduced among snail marketers.

Keywords: Snail marketing, Gini coefficient, Income inequality, Rural livelihood.

Introduction

Background information

Snails are bilaterally symmetrical in vertebrate micro-livestock with soft segmented exoskeleton in the form of calcerous shells (Agbogidi and Okonta, 2011, Afolabi, 2013). Many species of edible land snails are recognized but the popular species of economic interest in Nigeria is the West African giant snail (Archachatina marginata) with a broadly ovate shell and zigzag brown black stripes (Cobbinah et al., 2008). In Nigeria, snails dwell mostly in humid forest areas from where they are gathered by villagers for consumption and other uses (Onuigbo, 2015; Oladejo, Arowolo and Oguntoye, 2019).The interest in snail farming around the world stems from snails' high quality protein and medicinal value. For instance, protein from snail meat has proved to be very rich in all essential amino acids such as lysine, leucine, argeinine and tryptophan (Emevbore and Ademosun, 1988).Snail meat, which is popularly referred to as "igbin" in Yoruba tribe of Nigeria is nutritious and can be a viable supplement to the protein requirement of the people (Adinyal, 2006). The meat has traditionally been a major ingredient in the diet of people living in the high forest belt of the country (Baba and Adeleke 2006; Ugwumba, Obiekwe and Ozor, 2016).

In addition to the nutritional value of snail meat, recent studies indicated that the glandular substances from edible snails cause agglutination of certain bacteria, which could be of value against a variety of ailments including whooping cough and high blood pressure (Imevbore and Ademosun, 1988). Also, the bluish liquid obtained from snail has high iron content and is used for the treatment of anaemia, hypertension, poor sight and infants' development (Baba and Adeleke 2006; Okpeze et al. 2007). Other curable ailments by snails in Nigeria include anaemia, ulcer, asthma, age problems, hypertension and rheumatism (Abere and Lameed 2008).

Snails rearing requires a little space and can adapt to various environmental conditions which make it suitable to be reared in small towns, cities, farms, backyard or commercial levels at villages (Agbogidi and Okonta, 2011, Afolabi, 2013). Snails are also generally noiseless and easy to handle in addition to low capital and labour requirement for its rearing (Agbogidi et al., 2008, Goodman, 2008). In snail commercial farms, demand usually outstrips the supply. The wholesalers, retailers and consumers usually cloud to buy at farm gate prices (Adenegan and Bolaji-Olatunji, 2012; Jatau and Shidiki, 2012). Other markets for snails are roadsides, neighbourhood markets for life snails and supermarkets, hotels, restaurants and other catering institutions for smoked, cooked, canned or processed snails (Enugu State Agricultural Development Programme Annual Report) (ENADEP, 2009). Snail prices are often higher than those charged for beef or mutton due to its increasing consumer

demand and dwindling supplies (Onuigbo, 2015; Obinaju and Asa, 2016).

Objectives of the study

The broad objective of the study is to analyze the marketing of snail as a means of rural livelihood in Ondo State, Nigeria.

The specific objectives are to:

- Describe the socio-economic characteristics of snail marketers in Ondo State, Nigeria.
- Determine the cost and returns to snail marketing in the study area.
- Identify factors affecting snail marketing in the study area; and
- Identify the constraints to snail marketing in the study area.

Materials and Methods

The study area

The study was conducted in Ondo State, Nigeria. The state is situated within the topical region of Nigeria and it covers land area of about 14,606km2. According to National Population Commission (NPC, 2006), Ondo State has 3,441,024 million people with 18 local government areas. The geographical coordinates lies between latitude 5°45E - 60°00'N. The tropical climate of the State has two distinct seasons; raining season that starts from April and ends in October, and dry season that last between Novembers and March. It has a temperature range of 21- 29°C with average rainfall depth of 2,000mm on the southern area and 1,500mm in the northern area respectively. The major occupation of the people in the State is agriculture which offers about 75% of employment to the people of the state. The agricultural landscape among other thing is characterized by tree crops like cashew, mango, cocoa and oil palm. Other principal food crops include, yam, cocoyam, maize, and tomato. The people also engage in livestock farming such as poultry production, goat rearing, piggery, fisheries and snail rearing.

Data and Sampling Techniques

The data used in the study were mainly from primary sources. A multistage sampling procedure was employed to select respondents for the study. The first stage involved purposive selection of 3 Local Government Areas (LGAs) which were Akure South, Okitipupa and Owo based on the prominence of snails in the area. The second stage involved purposive selection of 4 towns/villages in each of the 3 selected local government areas based on the involvement of marketers in the enterprise, making 12 towns/villages in all. In the third stage, 10 respondents were randomly selected per town/village making a total of 120 respondents in all.

Methods of Data Analysis

Data collected were subjected to descriptive statistics and budgetary analysis. Descriptive statistics such as frequency counts, means, charts and percentages were used to summarize the socio-economic characteristics of the marketers. Budgetary (Gross margin) analysis was used to evaluate costs and returns on snail marketing by the respondents. Following Adegeye and Dittoh, 1985, gross margin is mathematically specified as:

$$GM = PQ - \sum_{j=1}^{m} C_j X_j \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where;

GM = Gross Margin of ith marketer

P = Market price of the output / kg

Q = Quantity of output produced, processed or sold by ith snail marketer per annum

Cj = Unit price of the variable input j incurred by ith snail marketer.

Xj = Quantity of variable inputs j used by ith snail marketer.

m = Number of variable inputs used by ith snail marketer.

Capital Turnover

Capital turnover is a measure of how effectively a business organization uses its assets to produce sales.

Mathematically, it is expressed as:

$$\text{Capital Turnover} = \frac{Total\ Revenue}{Total\ Cost} = \frac{TR}{TC} \quad \ldots\ldots\ldots\ldots (2)$$

Return on Investment (ROI)

This is a performance measure used to evaluate the efficiency of an investment or compare the efficiency of a number of different investments.

It is expressed mathematically as;

$$\text{ROI} = \frac{Net\ Profit}{Cost\ of\ Investment} \times 100 \quad \ldots\ldots\ldots\ldots\ldots (3)$$

Results

Table 1: Distribution of respondents by socio-economic characteristics.

Variables	Frequency	Percentage (%)	Mean
Age			
≤ 25	27	22.50	
26 – 40	51	42.50	36 years
41 – 55	36	30.00	
> 55	6	5.00	
Gender			
Male	45	37.50	
Female	75	62.50	
Marital status			

Single	40	33.33	
Married	80	66.67	
Household sizes			
≤ 5	51	42.50	
6 – 10	50	41.67	6
> 10	19	15.83	
Years of schooling			
≤ 6 years	34	28.33	
7 – 12 years	51	42.50	
> 12 years	35	29.17	
Years of experience			
≤ 5 years	25	20.83	
6 – 10 years	60	50.00	7 years
> 10	35	29.17	
Marketing channel			
Local markets	44	36.67	
Urban market	39	32.50	
Roadside	37	30.83	
Membership of association			
Yes	60	50,00	
No	60	50.00	
Sources of credits			
Friends/relatives	20	16.67	
Cooperatives	55	45.83	
Commercial banks	10	8.33	
Savings/thrift	35	29.17	

Source: Field survey, 2019

Table 2: Cost and returns to snail marketing in the study area.

Items	Mean value (₦)/cycle	Percentage (%)
Purchasing cost of snail @ ₦800 per kg	244,000.00	95.92
Cost of labour for assembling/ standardization	4,060.00	1.60
Transportation cost	5,100.00	2.00
Total variable cost (TVC)	253,160.00	99.52
Depreciation cost on fixed inputs	1,220.00	0.48
Total cost (TC)	254,380.00	100.00
Revenue		
Price (P) per kg = ₦1100.00		
Quantity (Q) sold = 305kg		
Total revenue (TR) = PxQ	335,500.00	
Gross margin = TR – TVC	82,340.00	
Profit = TR – TC	81,120.00	
ROI = $\frac{Net\ Profit}{Cost\ of\ Investment} \times 100$	31.89%	
Capital Turnover = $\frac{Total\ Revenue}{Total\ Cost} = \frac{TR}{TC}$	1.32	

Source: Field survey, 2019

Table 3: Market structure for snail in the study area.

Income/ Sales	Freq.	Proportion of sellers(X)	Total sales	Proportion of sales	Cumulative proportion of sales (Y)	XY
≤3000	34	0.283	91450	0.110	0.102	0.0289
3001 - 5000	28	0.233	130200	0.156	0.258	0.0602
5001 - 7000	9	0.075	60000	0.072	0.33	0.0248
7001 - 9000	11	0.092	92900	0.111	0.438	0.0402
9001 - 11000	15	0.125	156400	0.187	0.619	0.0774
1001-14000	15	0.125	193300	0.232	0.843	0.1054
≥14000	8	0.067	142500	0.171	1.000	0.0667
Total	120	1.000	866,750	1.000		∑=0.4034

Source: Field survey, 2019

Gini coefficient = 1-∑XY

Figure 1: Lorenz curve for snail marketers.

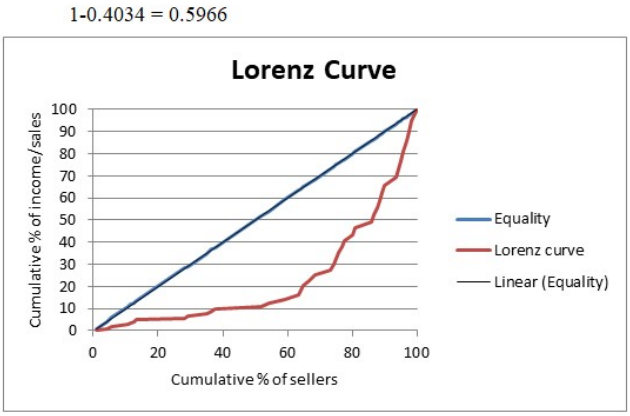

Table 4: Constraints facing snail marketers in the study area.

Constraints	Mean	SD	Rank
High cost of labour	2.59	0.948	1st
High cost of transportation	2.53	0.852	2nd
Lack of organized market	2.49	1.039	3rd
Lack of capital	2.44	1.0470	4th

Source: Field survey, 2019

Discussion

Socio-economic characteristics of the respondents

The result of the socio-economic in table 1 shows that 95% of the respondents were still within the economically active age of below 56 years with female gender dominating the business with 62.50% as against male household of 37.50%. Majority (66.67%) of the respondents were married with an average of 6 household sizes. This implies that majority of the snail marketers in the area are responsible and could take genuine decisions that could enhance the success of their business together with their spouses. It also suggests that adequate family labour are available to support the marketers in their business. The result reveals that majority (71.67%) of the respondents spent over 6 years in school with an average of 7 years' experience in the business. These also indicate that majority of the snail marketers have the required educational prerequisite and experience to accept innovation and be successful in the business. These findings are similar to earlier studies conducted by Ugwumba, Obiekwe and Ozor, 2016; Obinaju and Asa, 2016, Jatau and Shidiki, 2012 and Afolabi, 2013.The result also indicated that 36.67% of the snail marketers sell their snails at the local markets while, 32.50% and 30.83% sell their snails at the urban markets and roadsides, respectively. This implies that there are availability of market outlets in the study area. The result reveals that only 50.00% of the respondents belong to one association or the other while 50.00% did not belong to any association in the business. The result also shows that only 16.67% and 8.33% of the marketers get their credit sources from friends/relatives and commercial banks respectively, while 45.83% and 29.17% sourced their credits from cooperatives and savings/thrift respectively. Thus, indicating that only half of the snail marketers had access to credit acquisition for their business in the area.

Cost and Returns to Snail Marketing

Table 2 presents the distribution of cost and returns to snail marketers in the study area. The table shows that cost of purchasing snail covered 95.92% of the total cost indicating that snail marketing does not involve much fixed inputs. The result revealed that a snail marketer made an average gross margin of ₦82,340.00 and net profit of ₦81,120.00 respectively in a marketing cycle. The result of capital turnover value of 1.32 realised from the business implies that a snail marketer will make a profit of 32 kobo on every ₦1 invested in snail marketing business. The return on investment for the business was31.89% which indicates that snail marketing is a profitable venture.

Market Structure for Snail Marketers

According to Dillion and Hardaker (1993), a value of Gini coefficient greater than 0.35 shows that there is an inequitable distribution of income /sales as cited in Afolabi (2013). The Gini coefficient computed in this study for snail marketers was 0.5966 as shown in table 3. This figure is higher than 0.35, indicating a high level of concentration and inefficiency in the snails' market structure in the study area.

Snail Marketing Constraints

Table 4 display the mean distribution of marketers according to constraints faced in snail marketing in the study area. The mean value of responses showed that labour was the major problem of the respondents where there is no family labour. High cost of transportation (0.852) was also identified as the second major problem confronting the marketers. Transportation of goods is an essential means of facilitating trade. Lack of organised market was also identified to be affecting them. An organised market will create room for efficient market structure and good pricing for snails. The fourth challenge was identified as lack of capital with a mean value of 2.44 and a standard deviation of 1.0470.

Conclusion

The study concluded that snail marketing is a gender-based profitable venture. It was also noted that income inequality and inefficiency dominate snail marketing in the area. Profitability evaluation showed that snail marketing is viable but its expansion is limited by high cost of labour, transportation, lack of organised market and insufficient capital in the study area.

References

1. Adegeye AJ, Dittoh JS (1985) Essentials of Agricultural Economics. Impact Publishers Nig Ltd 164-177.

2. Adenegan KO, Bolaji-Olatunji KA (2012) Analysis of edible snail (Archachatina marginata) marketing in Ibadan Metropolis, Oyo State, Nigeria. InternationalJournal of Applied Resources and Technology 1: 100-108.
3. Adinyal IB, Ediet D, Nyienakuna MG, Ikpi GU (2011) Estimation of efficiency constraints using Cobb-Douglas production function in snail production by small farmers in Cross River State, Nigeria. J Anim Plant Sci 21: 274-282.
4. Afolabi JA (2013) Snail Farming as an Environment Friendly and Viable Enterprise in Ondo State, Nigeria. Afr J Environ Sci Technol 4: 274-278.
5. Agbogidi OM, Okonta BC, Ezeani EL (2008) Effects of two edible fruits on the growth performance of African Giant Land Snail (Archatina marginata Swainson). J Agric Biol Sci 3: 26-29.
6. Baba KM, Adeleke MT (2006) Profitability of Snail Production in Osun State, Nigeria. J Agric Food Sci 4: 147-155.
7. Cobbinah JR, Vink A, Onwuka B (2008) Snail Farming: Production, Processing and Marketing. 1st Edition.Agromisia Foundation, Wageningen, Netherland: 78-82.
8. Dillion JL, Hardaker JB (1993) Farm Management Research for Small Farmers Development, FAO Rome.
9. Emevbore EA, Ademosum AA (1998) The nutritive value of the African Giant Snail, Archachatina Margination. Animal production Research 8: 76-87.
10. ENADEP (2009) Enugu State Agricultural Development Programme Annual Report.
11. Goodman AK (2008) Giant African Land Snails. World Animal Review 3:15-23.
12. Jatau J, Shidiki J (2012) Snail Marketing as a Means to Combating Poverty and Hunger: The Case of Edible Land Snails (Achachatina Marginata) in Jos, Nigeria. Journal of Applied Biosciences 50: 3512-3519.
13. National Population Commission (NPC) (2006) Provisional Figures for 2006 Nigeria's population.
14. Obinaju LC, Asa UA (2016) Economics of Rural Livelihoods: A Case Study of Snail Farming in Itu Local Government Area, Akwa Ibom State, Nigeria. Am J Res Commun 4: 75-85.
15. Okpeze CN, Omole AJ, Ajayi FT, Adebowale EA (2007) Effects of feeding adult snails Stylosanthes guianensisor Lablab purpureus as substitute for pawpaw leaf. Afr J Biotechnol 6: 1959-1962.
16. Oladejo JA, Arowolo OV, Oguntoye TO (2019) Profitability of Snail Marketing in Ogo Oluwa Local Government Area of Oyo State, Nigeria. Int J Agric Sci 5: 22-30.
17. Onuigbo CC (2015) Economics of Snail Production in Enugu East Agricultural Zone of Enugu State, Nigeria. Unpublished Msc thesis Submitted to the Department of Agricultural Economics, University of Nigeria, Nsukka.
18. Ugwumba, COA, Obiekwe JN, Ozor MU (2016) Marketing of African Giant Snail (Achatina Achatina) in Anambra State, Nigeria. IOSR J Dent Med Sci 15: 57-66.
19. Abere SA, Lameed GA (2008) The Medicinal Utilization of Snails in Some Selected States in Nigeria. In: JC Onyekwelu, VAJ Adekunle, DO Oke (Eds.): Proceedings of the First National Conference of the Forest and Forest Products Society (FFPs) Held in Akure, Ondo State, Nigeria between 11th and18th 233-237.