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## MARKETING ANALYSIS OF SNAIL IN SELECTED MARKET IN IBADAN METROPOLIS, OYO STATE, NIGERIA

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### ABSTRACT

*The study on the marketing analysis of snail farming was carried out in Ibadan metropolis; using 100 structured questionnaire to collect data out of which 95 were retrieved. A multistage sampling technique was used in sample enumeration. Descriptive and inferential statistical methods were employed in analyzing the data collected. Archachatina marginata is the commonest species (73.7%) in the markets, sold mostly for consumption (72.6%) and primarily sourced from the wild. Snail marketing is dominated by youths, mostly females (86.3%). The supply of snails is irregular and the business is funded from personal savings and support from cooperative society. Economic analysis showed that marketers require ₦50,000 – ₦250,000 as working capital, with a resultant profit of ₦ 100,000 – ₦150,000. Snail marketing efficiency was 1.33. In conclusion snail market is profitable in the study area.*

**Keywords:** Snail, Marketing, efficiency, constraints

### INTRODUCTION

Food and Agriculture Organization (FAO, 1989) has reported that the average animal protein intake in Nigeria is low, calling for concerted efforts towards alleviating this crisis of protein shortage. Unfortunately, the conventional and regular sources of animal protein in the country like beef, pork, goat meat, fish, poultry etc are getting out of the reach of common populace, due to their high price, as a result of the economic down-turn (Olayide, 2004). Also, Wufueke (2004) reported that the consumption of animal protein in Nigeria is 5.5g per head per day which is absolutely below the Food and Agriculture Organization recommendation of 35g per head per day. To bridge this gap, various non-conventional animal protein sources like snail, cricket, and winged termites are now being explored. Snail meat is reported to be high in protein, low in fat, and a good source of iron (Ademolu *et.al.*, 2004). Though snails are gathered from the forest, they are also produced through snail farming (heliculture).

Snail is a terrestrial shell bearing animal of approximately 100,000 species of Molluscs, of the

*Phylum mollusca*, or alternately, any of the twelve species of land pulmonate gastropods used as human food (Akinnusi, 2002). It is air breathing, usually a monogastric herbivore, with a complex hermaphroditic reproductive system, though demanding cross fertilization. Snail is a small soft creature with a hard shell on its back that moves very slowly and often eats garden plants. Snails are the largest groups of mollusks constituting the largest animal groups after arthropods (Yoloye, 2002). Land snails habitat ranges from the dense tropical high forest in southern Nigeria to the fringing riparian forests of the derived guinea savanna (Odaibo, 1997).

The snail is usually found in damp places, under leaves, tree stumps and stones (Amusan *et al.*, 1999). They are abundant in the raining season, but undergo aestivation and hibernation, during the dry season, by forming a membrane over the shell opening, to reduce water loss. Amusan *et al.* (1999), indicated that snails are well adapted to adverse environmental conditions, such as cold, heat and temperature fluctuation and they have natural immunity against disease causing organisms, such as Streptococcus, Staphylococcus

and Penicillin species. The special adaptability found in snails in their natural habitat accounts for very low mortality rate, compared to other conventional livestock (Hamzat, 2003)

Snails as human food have been known since Roman times. In the middle ages, they were loved as some food rich in protein (Agbelusi and Ejide, 1992). Cobbinah (1993) reported that snails are gathered in the wild, packed into bags, wooden crates or basket and transported to main roads or to urban centres as a source of income. The edible portion (foot) of *A. marginata*, contained 17 – 18% crude protein ( Odukoya, 1998, Omole, 1999), which compares to conventional livestock meat like Mutton, Duck and Chicken, which have crude protein content of 16.9, 18.6 and 20.5% respectively (FAO, 1969). The fat content of snail meat ranged between 0.96 – 1.36% (Odukoya, 1998; Bright, 1999), which is very low, when compared to 9.6, 21.4 and 23.0%, found in chicken egg, Mutton and Duck products respectively.

The low fat content makes snail meat a good antidote for the hypertensive patient and those that have fat related diseases (Bright, 1999). The iron content ranges between 2.7 and 3.5 mg/100g (Imevbore and Ademosun, 1988), while chicken egg, mutton and duck have 1.6, 2.0 and 1.08 mg/100g respectively (FAO, 1969), hence it is good for curing anaemia. In traditional African medicine, snail meat is used in the preparation of concoctions for the treatment of various cases such as reduction of labour pains and blood loss in pregnant women during delivery (Cooper and Krowder, 1991; Akinwusi, 1998).

In order to solve the problem of protein deficiency and alleviate the effects of the present global food crisis, snail domestication should be given more attention in terms of funding and research focus. To reduce the cost of snail feed due to its high requirement for crude protein 24% and metabolizable energy 2400 Kcal/kg (Omole, 2002), the inclusion of cassava by-products in snail diet will go a long way to enhance performance and reduce cost of snail production.

Snail markets are found in the rural and urban settlements of Ibadan, Oyo State, Nigeria. The

snails are mainly hunted or gathered during the raining season (Olufowobi *et al*, 1989), except of recent when efforts are made to domesticate snails, which makes it a means of poverty alleviation through job creation (Amusan *et al*, 1989). It is now a lucrative business for house wives, retired civil servants, young school leavers, and those looking for business to augment their salaries.

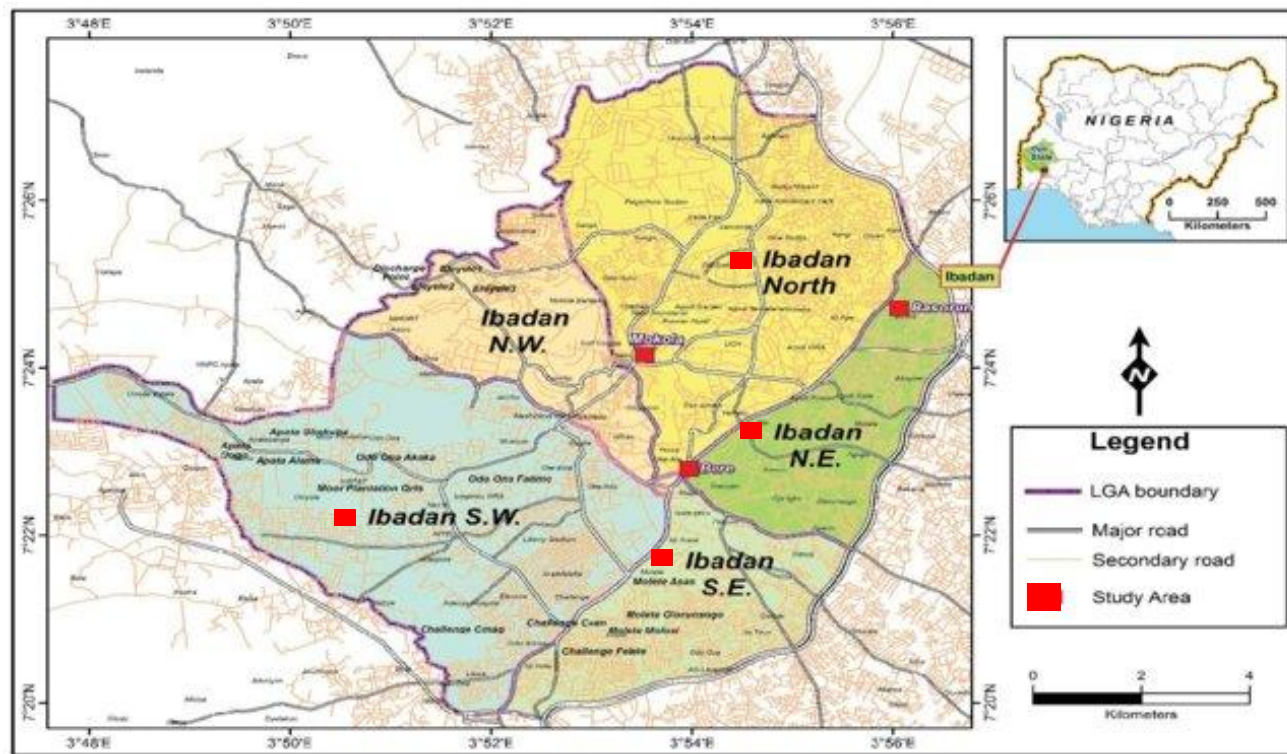
Handling is an important aspect of snail marketing, which has been abused by most marketers, through habits like starving, perforation of shells, improper method of transportation and packaging (Akinnusi, 1998). Snail marketing, if properly handled could be high income yielding and also owing to the fact that snail production is not complete until the product gets to the hands of the consumers.

This study therefore was intended to assess the marketing of snail in Ibadan metropolis. Snail marketing is a seasonal business in most parts of West Africa and it has huge potential to create job along its value chain. Snail markets are traditional, crude and small; with a great hidden potential. There is therefore the need to examine its feasibility for empowerment and maximization of marketing efficiency.

## **MATERIAL AND METHODS**

### **Study Area**

The study was carried out in Ibadan and environs. Ibadan is located in the tropical zone, lying between latitudes 7° N and 9° N of the equator and longitudes 3° E and 5° E of the Greenwich Meridian. The city is characterised by mean daily maximum temperature of 24.5°C and an annual rainfall of 1120mm-1140 mm. The city consists of eleven Local Government Areas (LGAs). According to 2006 census, a population of 2,872,890 peoples was recorded in the study area out of which 49.38% were male and 50.42. % was female (NPC, 2006). The major occupation of the people in the study area is trading. Predominant occupation of the inhabitants is farming, with diversity in crop and animal production. The study examined snail marketing in the area.



Map of Ibadan metropolis

Source: Salami et al.,(2016)

**Sampling Technique**

Multistage sampling was used to sample the respondents. In the first stage, four LGAs were purposively selected from the Ibadan metropolis, which were Ibadan North, Ibadan Southwest, Ibadan South East and Ibadan North East because these LGAs housed the major snail marketers in the study area. In the second stage, one market was selected from each LGA which were Bodija Market, Bode Market, Oritamerin Market and Oje Market. In the third, stage 25 snail marketers (respondents) were randomly selected from each market.

A total number of 100 copies of questionnaires were administered among the snail marketers but only 95 were retrieved.

Marketing Efficiency = Total return from sales / Total marketing cost.

Gross market margin was applied by calculating difference between Total Revenue and Total Variable cost

$$GM = TR - TVC$$

Where:

GM=Gross margin

TR=Total Revenue

TVC=Total Variable Cost

**Data Analysis**

Descriptive statistics such as frequencies and percentages were applied to analyse the socio-

economic characteristics and constraints of respondents while marketing efficiency was determine using Total returns from sales divided by Total marketing cost.

**RESULTS**

Table 1 revealed that 13.7% of the snail marketers were males and 86.3% were females. This showed that the females dominated the business. It further revealed that 47.4% of the respondents were within the age group of 39-40years while age range of 50 – 69yrs and 1-29yrs accounted for 36.8% and 10.5% respectively. This result showed that majority of the respondent were in their active age . Snail marketing can engage many people as an empowerment programme, since it does not require any special skill and education. The result revealed that snail marketers did not require high level of education, since most of the practitioners (94.3%) had at most secondary school education. The low level of education could be attributed to the primitive nature of the business, poor handling of snails and the poor fund outlay of snail marketing,. Majority of the snail marketers are married (73.7%) while 15.8% and 10.5% of the respondents were single and widowed. This result shows that all categories of people were involved in the marketing of snail though dominated by married women probably to increase household income.. The result showed that 83.2% had no

regular supply, while 16.8% had regular supply, this implies that snail marketing is seasonal. Majority of the respondents 52.6% were Christian while 36.8% and 10.5% of the respondents were Muslims and traditional worshippers respectively. The result implies that there is no religion prohibition against snail marketing due to nutritional and medicinal and economic importance of snail. The result show that 42.1% of the respondents have 3-4yrs of experience, 36.8% and 11.6% have 5-6yrs and 1-2yrs of experience. This implies that more people are going into snail marketing and production due to increase in the awareness on the importance attached to snail production and promotion of small scale business by government.

The result reveals that 55.8% of the respondent used personal savings as initial capital to set up their business, 31.6% and 12.6% raised their capital from cooperatives and friends and relatives respectively.. The result further reveals that 40% of the respondents could mobilized N50,000 – N100,000 as their business operation capital, 30.5% , mobilized less than 50,000.(24,2% mobilized ₦100,000 – 200,000 while 5.3% could mobilized ₦ 200,001 – ₦ 250,000 as their business operational capital. The result reveals that 49.5% of the respondents realized 100,000 – 150,000 as annual income, 26.3% realised ₦150,000 – 250,000 as income while 21.1% above ₦ 300,000 as annual income. This result implies that Snail business is profitable.

Table 2 reveals that 73.7% of *Archachatina marginata*, 14.7% *Achatina achatina*, 7.4% and *Achatina fulica* were found in the market The result implies that *Archachatina marginata* was predominantly in the markets. This is due to the fact that it has more meat than other species and this command higher price thereby giving more revenue to the marketing of snail in Ibadan

metropolis was *Archachatina Marginata* and this could be due to its high level of availability and acceptability.

The result revealed that 47.4% of the respondents stored snails in the drums or pots, 42.1% stored their snail in the tyres while 5.3% stored their snail in the fenced pen. This implies that drums or pots are the most preferred storage facility in the study area. The snails were purchased for consumption as reflected by 72.6% of the respondents while 21.1% indicated that they purchased snails for medicinal purpose and 5.3% purchased snails for domestication. It was obvious from the result in the study area that majority of the consumers procured snails for consumption; this could be due to the increased awareness of nutritional benefits of snails meat as a good source of protein coupled with its low fat and cholesterol contents.

The result reveal that 77.9% of the respondents sourced their snail from the wild, 14.7% from snail farmers 5.3% sourced their snail from the research institutes. This result implies that the source of the snail was predominantly from the wild (77.9%).

Table 3 revealed the marketing margin of 200 kilogramme of *Archachatina marginata*, this is defined as the difference between purchase and sales prices (Tomek and Robinson, 1981). The marketing margin was ₦50, 000 The economic marketing efficiency of snail was determined to be (1.33), and was found to be efficient The efficiency of snail marketing could be further enhanced, with strict adherence to the proffered solutions, such as repairing of bad roads to reduce transportation cost, improved financing to snail marketers, through enhanced micro-financing and creation of more awareness on snail domestication

**Table 1: Socio Economic Characteristics of Respondents**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>		
Male	13	13.7
Female	82	86.3
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Age Distribution</b>		
1-29	10	10.5
30-49	45	47.4
50-69	35	36.8
70 Above	65	5.3
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Educational Level</b>		
No Formal Education	20	21.1
Primary	40	42.1
Secondary	30	31.1
Tertiary	5	5.3
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Supply Of The Product</b>		
Regular Supply	16	16.8
NOT Regular	79	83.2
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Religion</b>		
Christian	50	52.6
Muslim	35	36.8
Traditional	10	10.5
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Year Of Experience</b>		
1-2yrs	11	11.6
3-4yrs	40	42.1
5-6yrs	35	36.8
Above 6yrs	9	9.5
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Source Of Capital</b>		
Personal Savings	53	55.8
Co-Operative Society	30	31.6
Relatives And Friends	12	12.6
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Business Operational Capital</b>		
Less Than- ₦50,000	29	30.5
50,001 – 100,000	38	40.0
100,001 – 200,000	23	24.2
200,001 – 250,000	5	5.3
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Annual Income</b>		
Less Than 100,000	20	21.1
100,001- 150,000	47	49.5
150,001- 250,000	25	26.3
Above 300,000	3	3.2
<b>Total</b>	<b>95</b>	<b>100</b>

Source: Survey 2018

**Table: 2. Management practices of snail in Ibadan Metropolis**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Breed of snail</b>		
<i>Archachatina marginata</i> (igbin apinnu)	70	73.7
<i>Achanna achatina</i> (Igbiniako)	14	14.7
<i>Achatina fulica</i>	7	4.2
<i>A. Marginata, A. achatina and A. fulica</i>	4	4.2
<b>Total</b>	<b>95</b>	<b>100`</b>
<b>Means of storage</b>		
Fence pen	5	5.3
Drums or pots	45	47.4
Tyres	40	42.1
Others	5	5.3
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Snail usage</b>		
Consumption	69	72.6
Medicinal	20	21.1
Domestication	6	6.3
<b>Total</b>	<b>95</b>	<b>100</b>
<b>Source of supply</b>		
Wild	74	77.9
Snail farmers	14	14.7
Research Institutes	5	5.3
Wild, Snail Farmers and Research Institutes	2	2.1
<b>Total</b>	<b>95</b>	<b>100</b>

Source: Survey 2018

**Table 3: Estimate of Market Margin of 200 kg of *Archachatina marginata* (Igbini Pinnu)**

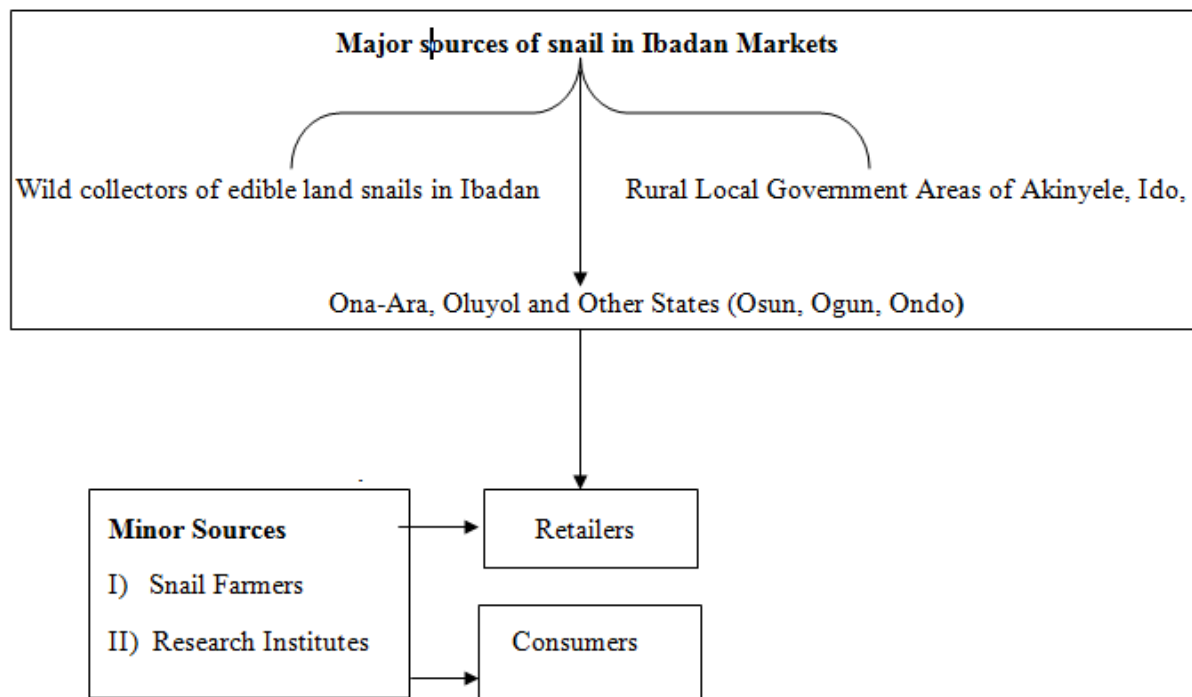
<b>Parameter</b>	<b>Amount(₦)</b>
Cost of purchase (N600 per kg)	120,000
Marketing Cost	
Cost of loading	1,000
Cost of unloading	1,000
Cost of feeding	2,000
Rent	3,000
<b>Total variable cost</b>	<b>9,500</b>
Sales price (800 per kg)	170,000
Gross margin	50,000
Net Margin	40,500

**Marketing channels for edible land snail in Ibadan Metropolis.**

Figure 1 revealed that snails found in selected Markets in Ibadan were mainly from the wild collectors, which were from the following Local Government Areas like Akinyele, Ido, Ona Ara, Oluyole. Snails were also brought from nearby

states like Osun, Ogun and Ondo. Other minor sources of snail to the final consumers were snail farmers and research Institutes, because they have embraced domestication. The retailers purchased from these sources and finally sold them to the consumers.





**Figure 2: Marketing channels for edible land snail from selected Markets in Ibadan**

**Constraints of Snail Marketing in Ibadan Metropolis**

Table 4 shows that snail marketing in selected Local Government in Ibadan metropolis encountered several constraints. About 31.6% of

marketers faced with irregular supply.26.3% complained of high cost of purchase, 21.1% complained of lack of finance, 15.8% faced with inadequate storage facilities, and 5.3% complained of high cost of transportation.

**Table 4: Constraint of Snail Marketing in Ibadan Metropolis**

Constraint	Frequency	Percentage
Lack of finance	20	21.1
Irregular supply	30	31.6
High cost of purchase	25	26.3
Inadequate storage facilities	15	15.8
High transportation	5	5.3
<b>Total</b>	<b>95</b>	<b>100</b>

Source: Survey 2018

**DISCUSSION**

Result showed that the females dominated the business. This results is in agreement with Souley and Sanni (2008) when they stated that women are not only consulted but have a major role to play in marketing of livestock and other related activities. They also opined that most decisions on snail marketing and production involved women. This result showed that majority of the respondent were in their active age and this was attributed to the rigour of transportation and sourcing of snails.(Ogunniyi 2009) when he reported that snail business is most embraced by young people, most of which has small family size and less domestic responsibility which avails time to travel to source for snails. Snail marketing can engage many

people as an empowerment programme, since it does not require any special skill and education.

The low level of education could be attributed to the primitive nature of the business, poor handling of snails and the poor fund outlay of snail marketing, thus agreeing with observation of Fakoya and Eniola (2002) that mental horizon of marketers and eventually improve their ability to source for fund. This result shows that all categories of people were involved in the marketing of snail though dominated by married women probably to increase household income, this is in line with findings of Yusuf (2002) and Ogunniyi (2009) when they found out that married people were more involved in snail farming. Snail marketers raised their capital from cooperatives

and friends and relatives respectively. The results also agreed with the findings of Raheem (2001) that 96% of snail farmers used their personal savings as a source of initial capital. This result agreed with Akanni and Adetayo (2011), Babatunde (2008) which found out that the amount of working capital for business enterprises often determines the level of output and the accruable profit margin. The result implies that *Archachatina marginata* was predominantly in the markets. This is due to the fact that it has more meat than other species and this command higher price thereby giving more revenue to the marketers. This result agrees with the findings by Hamzat (2000) that *Archachatina marginata* is common in Nigeria and it is an excellent source of animal protein, having large body size and easy to manage. The findings also agreed with Akinnusi (2004) which stated that the commonest breeds of snail in Ibadan metropolis was *Archachatina marginata* and this could be due to its high level of availability and acceptability.

It was obvious from the result in the study area that majority of the consumers procured snails for consumption. This could be due to the increased awareness of nutritional benefits of snails meat as a good source of protein coupled with its low fat and cholesterol contents Ayodele and Asimolowo (1999). This result implies that the source of the snail was predominantly from the wild (77.9%). These result corroborated the findings of Eze *et al.* (2006) and Kehinde 2009, when they confirmed that most snails in Nigeria were sourced from wild through hunters and gatherers, who eventually sell to the retailers or marketers. The economic

marketing efficiency of snail was determined to be (1.33), and was found to be efficient. Nwosu and Onubuogu (2008) stated that economic marketing is efficient, if the computed ratio is greater than one, and inefficient, if otherwise, the value obtained was close to 1.08 obtained by Eze *et al.* (2006), for wet and dry season marketing efficiency of snail.

The efficiency of snail marketing could be further enhanced, with strict adherence to the proffered solutions, such as repairing of bad roads to reduce transportation cost, improved financing to snail marketers, through enhanced micro-financing and creation of more awareness on snail domestication

## CONCLUSION

It could be concluded that the market was dominated by females and the dominant age group of the marketers was 30-49yrs because it is a youth dominated venture. The respondents sourced their capital from personal savings. While some through cooperatives. The commonest breed of snail found in all the market is *Archachatina marginata*. The level of snail domestication was low because majority of the respondents sourced snails from the wild.

## Recommendation

Based on the findings the following recommendations were drawn

- i. Snail farmers and marketers should be empowered with low interest loan.
- ii. Advocacy on Snail farming should be encouraged to ensure conservation to prevent extinction.

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