

SOCIAL VARIABLES INFLUENCING SNAIL REARING (*Archarchanita Spp*)

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ABSTRACT

This study investigated the social attributes that influence farmers to embark on snail farming. A sample size of 123 snail farmers was used for the study. Information were collected from them with the use of interview schedule and questionnaire. The snail farmers had on average age of 45.5 years and were predominantly females. Most of them had either secondary or tertiary education and were mostly married, with average household size of 5 persons. The farmers were predominantly Christians who also belong to various respective snail farmer's groups. They had a mean farm size of 250 snails and their decision to embark on snail farming was influenced by their marital status, level of formal education, household size, religion and their membership of snail farmers groups. The constraints they contended with included invasion by crawling insects, lack of information, dearth of improved snail breeds and poaching. It is recommended that gutters filled with pesticide solution should be provided round the pens' agricultural extension agent should convey the desire of the farmers for improved snail breeds to the relevant research institute; more extension agents should be trained and recruited; extension agents should arrange to be meeting the farmers in groups; and security measures should be put in place on the doors to the hutches.

Keywords: Social attributes, snail farming, *Archachanita marginata*, snail rearing influencing factors, constraints to snail farming.

INTRODUCTION

Nigeria has the highest population Cover 140 million people) in Africa (NPC, 2006). Nigerian domestic economy is predominantly agrarian and agrarian contributes about 40% to the gross domestic product (GDP) (Farinde et al, 2013). Two-thirds (2/3) of Nigeria labour force are engaged in agriculture having been involved in arable and perennial crops production and livestock production. Agriculture supplies a lot of raw materials food for the populace and generates income for most households in Nigeria.

The population of Nigeria is on a steady rise and food production enhancement has not been commensurate with this population growth trend (Ekototu and Ekelemu, 1999). Akagbajo – Samson (1997) points out that in the presence of the extant growth in human population at a rate of 4-5%, livestock production is rising at a rate 2-3%. This

implies that a wide gap exists between supply and demand of protein of animal sources (Ofuoku et al; 2008). This has consequently led to high cost of animal protein. In this situation, it is difficult for poor Nigerian households (HHs) to have easy access to animal protein in order to achieve their animal protein requirements in their diets. This prompted the exploration of alternative source of animal protein in order to have increased access to protein. One of these alternative source of animal protein is snail.

It is believed that domestication and rearing of snails will contributed to achieving animal protein needs of the populace. This led to snail raising initiative in Nigeria. This initiative, as earlier pointed out is meant to arrest protein and food shortage. It is also expected that it will create employment for rural dwellers either as/or additional source of income. Apart from the protein content of snail, there are other nutritional benefits derivable from it.

“Nutritionally, snail meal is rich in protein, has low cholesterol and fat contents, contains iron, vitamins A, E, K and B₁₂, calcium and Magnesium. The shell is used as calcium source for animal feeds. They are highly medicinal and are used for health related products. The meat also has traditional healing benefit. Snail meat also contains glycoprotein which is believed to possess cancer fighting properties (FAO, 2013)”

As a result of the aforementioned qualities, the demand for snail outweighs the supply. This implies that market is readily available. However, in some communities people do not even touch them for traditional and religious reasons. Observations have shown that the communities that do not forbid it are far more in number than those that abhor it. Considering the demand and supply gap, it is pertinent to carry out a study to ascertain the social determinants of snail rearing. The main objective of this study was therefore, to investigate and unveil the social variables that influence snail rearing in Delta State, Nigeria Specifically, the study was conducted to determine the social characteristics of snail farmers in the study area. Ascertain their farm sizes (population of snails); determine the influence of farmers social attributes on snail farming and identify the constraints experienced by the farmers. It was hypothesized that the social characteristics of the farmers do not influence snail rearing decision.

RESEARCH METHOD

Delta State, the study area lies between latitude 5⁰⁰' and 6⁰³⁰' and longitude 5⁰⁰' and 6⁰⁴⁵'. The state is

located in the Niger Delta Region of Nigeria and lies within mangrove swamp fresh water swamp forests and derived savannah vegetational belt. It has a humid climate and the weather encourages the rearing of snail. The indigenous population is made up of Urhobo, Ukwani, Ika, Igbo, Ijaw and Itsekiri tribes. Among them, most practice Christianity while some practice African Traditional Religion (ATR).

The state is shared into three agricultural zones – Delta South, Delta Central and Delta North Agricultural Zones by Delta State Agricultural Development Programme (DTADP). DTADP has zonal offices in each of the zones. Delta South consists of 6 extension blocks; Delta Central Agricultural Zone consist of 10 extension blocks and Delta North Agricultural Zone is made up of 9 extension blocks.

The list of snail farmers who registered with the block extension agents were accessed and 10% the snail farmers were randomly selected for the study. This resulted to selection of 123 snail farmers.

Data were collected from the farmers with the use of questionnaire and interview schedule which were administered to the farmers with reasonable level of formal education and those with little or not formal education respectively by the extension agents and the researcher.

The data collected were subjected to statistical analysis using frequency counts and percentages for the social characteristics and constraints experienced by the farmers),while linear regression model was used to test the hypothesis.

The regression model is shown below:

$$Y = (X_1, X_2, X_3, X_4, X_5, X_6, X_7, \epsilon)$$

Where Y rearing of snail population of snail(Size of snail farm)

- X₁ Age (Years)
- X₂ Marital status (Married = 1, otherwise = 0)
- X₃ Gender (male = 1, female = 0)
- X₄ level of formal education (number of years of schooling)
- X₅ Household (HH) size (number of persons)
- X₆ Religion (Christianity = 1, otherwise = 0)
- X₇ Affiliation with group (Yes = 1, no = 0)
- ε Error term

Table 1 indicates that the snail farmers has an average age of 45.5 years. This is an indication that most of them were in their innovative ages. Snail rearing was dominated by women (57.72%). This is not unconnected to the fact that snail rearing does not require heavy labour. FAO (2013) points out that the labour requirements for snail rearing is quite light and does not need too much attention unlike in the case of poultry.

Most (79.67%) of them were married with an average household size of 5 persons. The decision by them to engage in snail rearing is attributable to the fact that many of them had large household size to cater for and the practice of snail farming is not capital intensive, just as it does not require extensive land.

Most (86.99%) of them were Christians. This has positive implication for rising and consumption of snail. A great number (95.93%) were affiliated to snail farmers' groups. Groups influence the behaviour of their members. Ofuoku (2013) observes that frequent contact of farmers with other members of the farmers' own groups leads to great influence of the other members or their thoughts and attitudes.

Table 1: Social characteristics of Snail Farmers (n = 123)

Variables	Frequency	Percentage (%)	X̄
Age			
21-30	12	9.76	
31-40	26	21.14	
41-50	33	26.83	45.5
50-60	44	35.77	Yrs
Above 60	8	6.50	
Gender			
Male	52	42.28	
Female	71	57.72	
Marital Status			
Single	26	21.14	
Household Size			
1-4	55	44.72	5 person
5-8	46	37.40	
Above 8	22	17.89	
Religion			
Christianity	107	86.99	
ATR	5	4.07	
Atheist	11	8.94	
Affiliation with group			
Yes	118	95.93	
No	5	4.07	

Farm sizes (Population of snails)

Most of the snail farmers operate on small –scale as the average farm size is 250 snails. Observations reveal that most of them operate in their back yards. However, they said they were satisfied with the returns they get in terms of cash and food for their respective household. This implies that they had dual

purposes behind their mind for venturing into snail farming. This is in consonance with the observations of FAO (2013), which observes that most snail farms are located at farmers’ backyard and serve dual purpose of feeding the family with protein and supply of cash to the farmers.

Table 2: Farm size (Population of snail) in respondents snailry

Farm Size (no of snails)	Frequency	Percentage	X
50-100	5	4.07	
101- 150	8	6.50	
151-200	15	12.20	250
201-250	17	13.82	Snails
251-300	21	17.07	
301-350	25	20.33	
351-400	20	16.26	
Above 400			

Influence of farmers’ social attributes on their decision to engage in snail rearing

The summary of estimation of the influence of social variables on snail rearing shows that the model has R² value of 0.931 (Table 3).The implication is that 93% of the variation in decision of the farmers to rear snails was accounted for by the social variables captured in the study. The social variables –marital status, level of formal education, household size, religion and group membership significantly

influence snail rearing among the farmers. They are in consonance with *a priori* expectations. Marital status had positive significant influence on farmers’ decision to rear snails. The responsibility resting on the shoulders of the farmers to cater for the nutritional /food needs of their respective families prompted them to venture into snailry. Formal education influenced human behaviour and positively influenced the behaviour of the farmers towards Snail rearing in the society of where people forbid snail.

Table 3: Estimation of influence of social variables on snail rearing

Social attributes	Substandardized coefficient	beta	Std Error	Std Coefficient of beta	T-rates
Constant	5.705		5.192	-	1.232
Age (X ₁)	0.263		0.238	0.195	-1.207
Marital Status (X ₂)	0.343		0.220	0.087	2.064*
Gender (X ₃)	6.092E – 02		0.346	0.024	0.366
Level of formal education (X ₄)	8.213		0.612	0.936	14.2.77***
Household size (X ₅)	5.096E –03		0.002	0.273	3.641**
Religion (X ₆)	0.454		0.331	0.099	2.185**
Affiliation with group (X ₂)	0.708		0.093	0.957	2.233**

R² = 0.931

** significant at 5%; *** Significant at 10%

Household size also influenced the farmer’s decision to embark on snail rearing positively. A unit increase in household size would lead to a unit increase in the tendency to rear snails. This is related to the reason given in the case of marital status; Members of their households required food, and good diet at that. As a result, farmers engaged in snailry to cater for the food need of their household and cash to procure other needs of their households. Religion positively influenced the farmers’ decision to embark on snail farming. This implies that the more of a Christian a farmer is the higher the tendency for him or her to engage in snail farming. Christianity does not allow her members to forbid any food, except such food is

found to be poisonous. This means that those who practice ATR have the tendency to forbid snail rearing and consumption as they regard it as a taboo, forbidden by their deity. According to Business Mopol (2016); FAO (2013) because of religious and cultural reasons some people do not even touch snails, not to talk of consuming them for food. Group affiliation positively influenced farmers’ decision to rear snails. The implication is that farmers’ behaviour had been influenced by other members of their respective groups Ogionwo and Eke (1999); Ofuoku (2013) observe that the behaviours of group members are influenced by their groups.

Constraints facing snail farmers

The most important constraint to snail farming in the study areas was invasion by crawling insects (78.86%) particularly ants (Table 4) Thor (2015) observes that the greatest challenge to snail rearing is invasion of their hutches by ants.

Access to information (55.28%) on sources of West African giant snail (*Archachanita marginata*), insects and pests control measures, and government empowerment programme is another important constraint to snail farming. This is attributable to the poor extension: farmer ratio and poor logistic support for field staff. At the end of 2003, the ratio of

extension agents to farm families in Nigeria was about 1:1,722. (Agbamu, 2001) The implication is that extension workforce has been overstretched. The greatest problem as farm as logistics are concern is mobility of agricultural agents to different locations in order to render services to farmers daily (Agbamu, 2011). Mobility of field. extension agents is very crucial to the operation of an efficient extension service. Good and reliable means of transport for extension agents to move from location to location to render services to rural and urban farmers is one of the variables that has the key to the success of extension work.

Table: Constraints to Snail farming

Constraints	Frequency	Percentage (%)
Crawling insects invasion	97	78.86
Scarcity of improved breeds	61	49.59
Lack of Information	68	55.28
Poaching	53	43.09

There were multiple responses

Other problem were scarcity of improved breeds (49.59%) and poaching (43.09%). Though these are very serious, they affect the satisfaction of the farmers. There has not been conscious research effort to improve the breeds of other snail species (*Achanita achanita* and *Achanita fulicia*) by crossing breeding them with *Archachanita Marginata* that has superior size.

Poaching is not very rampant as most farmers considered security of their snails while constructing their hutches. Few farmers were oblivious of this hence the poachers' invasion of their farms.

CONCLUSION AND RECOMMENDATIONS

The snails farmers has an average age of 45.5 years and the practice was dominated by women. Most of them had secondary or tertiary education and were also mostly married, with an average household size of 5 persons. They were predominantly Christians of various denominations and had affiliation with farmers' groups. They had a mean farm size of 250 snails, implying that they were smallscale snail farmers their marital status, level of formal education, household size, religion and affiliation with group positively influenced their decision to embark on snail farming. The important constraints facing them were invasion by ants and the dearth of information. Other, though of less importance, were scarcity of improved breeds of snail and poaching by thieves.

In Consideration of the above, it is recommended that:

- (i) Gutters filled with insecticide solution be provided round the pens housing the hutches where the snails are reared. This will stave of ants and other crawling insects.

- (ii) Agricultural extension should inform the relevant research institute on the desire of the farmers for improved snail breeds
- (iii) More extension agents should be trained and recruited to make up for the vacuum in the extension to farmers ratio.
- (iv) Instead of separate interaction with extension agents, the extension agents should make arrangement with the farmers to be meeting them in their various groups of snail farmers.
- (v) Security measures should be put in place in the door to the hutches to discourage poachers.

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