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Producing snails in Cameroon's Fako Division, South

West Region

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Abstract

To explain the reasons for snail increasing production in Cameroon, their socioeconomic status, production system, management practices and production constraints were studied. Thus, 40 snail farmers were randomly selected from five subdivisions (16 from Buea, 12 from Limbe II, 8 from Muyuka, 2 from Limbe I and 2 from Tiko) in the study area. Snail rearing is predominated by females (57.69%). They are adults aged between 20 to above 61 years old, married (90.71%), all belonging to one religion, Christianity and had at least primary education. These farmers were either involved in livestock (51.83%) or crop farming (48.17) as main agricultural activity and are principally Bakweri (39.04%). Snails are mostly reared for the market and self-consumption (58.97%). Animals are mostly sold on the farm (83.33%) primarily during the dry season of the year for various reasons. The annual contribution of snail husbandry per household is 100000-150000 CFAF per year (200-300 USD). In the technical aspect, various housing type are applied with majority being trench pens (45.87%), the major species of snails reared was Archachatina marginata, reared by 92.69% under the semi intensive production system (98.00%). Few (35.63%) of the farmers are trained in snail farming. The most commonly used feeds is natural feed (leaves, fruits and tubers) and household waste. Concentrate supply (5.87%) is the main form of supplementation, and to a lesser extend calcium (1.14%) is use. A larger proportion (40.56%) of the farmers fed their animals on a daily basis and particularly in the morning (36.60%). Many (54.52%) did not serve water to their snails but those who did served, watered their animals on a daily basis (16.03%) as well. The major challenges faced by the snail farmers were; pest attack, predators, lack of techniques, lack of funds, lack of feeds, lack of water, lack of animal supply, slow growth rate and climate change. However, farmers wish to continue with the activity. Thus more people are encouraged to engage in snail farming as it contributes much to the family welfare.

Keywords: Introduction, Fako, Characterization, and Snail Farming.

Introduction

The North American and European snail trade is booming (Cobbinah et al., 2008). In spite of high demand from both domestic and international consumers, their research revealed that commercial snail farms-the kind seen in the Americas, Europe, and Southeast Asia—are surprisingly rare in Africa. Because of its greater protein content (20.7% vs. traditional food animals), snail meat is a great source of animal protein in several regions of West and Central Africa (Blay et al., 2004; Malik et al., 2011). In addition to being an excellent source of high-quality protein, snails are also an excellent source of potassium, phosphate, vital amino acids, vitamins B and C, and other nutrients (Baba and Adeleke, 2006). Additionally, the flesh has less fat and is high in iron (Okpeze, 2007; Cobbinah et al., 2008). Snail meat is very nutritious, and there are rumors that it may have therapeutic properties as well. Because of its low cholesterol and low fat content (1.3%), snail meat is

an effective remedy for tropical vascular disorders such heart attacks, cardiac arrests, hypertension, strokes, high blood pressure, and other conditions connected to fat (Akannusi 2002). In place of the fatty and unhealthy meats that have recently taken over our markets, snails will gain popularity as the African populace seeks better lifestyles and lower cholesterol diets (AU 2016). The bluish liquid that comes out of deshelling snails is thought to be beneficial for baby development in Ghana. What's more, a new study found that the glandular substances in snail flesh cause specific bacteria to agglutinate, suggesting it could be useful in fighting whooping cough and other illnesses (Cobbinah etal 2008). According to Ogogo (2008), ortho calcium phosphate, a medicinal compound derived from snails, has several purported uses, including the treatment of kidney disease, constipation, hemorrhoids, influenza, and other gastrointestinal issues. It is also said to restore virility, vitality, beauty, and skin clarity, and has been recommended for individuals who sing or require



hormonal injections. Snails are often found in West African forests and are historically collected by rural residents during the rainy season. They are found hiding clearing for agricultural purposes, and the collection of immature snails by farmers and dwellers of the rainforest belt are some of the anthropogenic factors that have led to a significant decline in the population of the snails sold there come from the wild. Therefore, snails are more expensive, especially during the dry

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beneath leaves, stumps, stones, and other wet areas (Ngenwi et al 2010). The use of agrochemicals, deforestation for urban development, burning and snails in the wild (Cobbinah etal2008). It is challenging for vendors to fulfill the demand for snails in African marketplaces, particularly Cameroon, since most of

Study Area



(Ogogo etal.. 2011). season The length of the rainy season has been reduced and outdoor temperatures have been rising globally, especially in West Africa, as a consequence of recent climate changes. Because of this, fewer snail species are found in nature (Ngenwi etal., 2010). The gradual decrease in snail populations has prompted people living in rural areas to spend more time scouting, which in turn has led to the indiscriminate gathering of juvenile snails (Chah and Inegbedion 2012). Snail farming presents a significant possibility for wealth creation in both wealthy and less developed nations, since the number of wild snails is rapidly decreasing while the demand for snail meat is rapidly expanding. All of the things listed above are bad for snails' development and growth (IPCC 2007). Consequently, the edible land snail will inevitably be domesticated and subjected to rigorous control. Based on this, achatiniculture was established, which entails modifying the environment to facilitate the large-scale, year-round production of healthy, desirable snail species.

Therefore, the purpose of this research was to analyze the snail farming system in the Fako sub-division of Cameroon. Researchers looked into the economic, social, and technological aspects of snail producers, calculated the costs and returns of snail production, and identified the elements that influence snail improvement.

Methodology

Study were carry out between February to March 2018 in Fako Division, located in the South West Region of Cameroon and is situated at the foot of mount Cameroon (Figure 1). It covers a surface area of 2093km² and an average altitude of 2833m. It is the most thickly populated division with a population of about 534854.Temperatures is about 26.4°C around the coast area.

Sampling Technique

Fako sub-division(forest bimodal rainful agro-ecological area) was purposively selected from the 5 agro- ecological zones of the state for the study. This choice was made because of the dominance of snail production in the zone. A random sampling technique was applied to select 40 farmers in the following sub division; Buea (16), Limbe II (12), Muyuka (8), Limbe I (2) and Tiko (2). The main information was based on the age, sex, religion, level of education, marital status, mode of acquisition of animals, labour, income per year, objectives, constraints and perspectives. Technical data concerned animal size (herd), housing, feeding and farming system. Snow balling sampling technique which involves the establishment of personal contact with the



respondents to build up the required sample was used to identify the snail

Figure 1: Map of Fako Division with Subdivisions indicated Validity and Reliability of Questionnaire

The validity of the questionnaire was tested using content validity, the questionnaire was adjudged 'satisfied' by professional in the field of Agricultural Economics. Reliability of the instrument was tested using the test-retest technique.

Data analysis

The analytical technique employed is descriptive statistics, such as frequency counts, percentage and mean was used to measure socio-economic characteristics of the respondents. These calculations were carried out thanks to Microsoft Excel 2013 and SPSS (*Statistical Package for Social Sciences*) software version 20.0.

Results and discussion

Social characteristics of snail farming

As revealed by table 1, the majority of the farmers were between 41 and 60 years of age with an average of 66.90%. This finding is in tandem with those of Chah and Inegbedion (2012) who reported that in Edo State, Nigeria, the age group 41 to 60 years is the majority (91.1%). Snail farming requires little labour with no strenuous physical exertion (Goodman 2008), and this may explain why majority of the snail farmers were above 40 years of age(Mbolle and Inegbedion 2013).Contrary to this findings,Ahmadu and Ojogho (2012) study reveals that respondents were relatively young (39 years) in Edo State of Nigeria.

Except Muyuka and Limbé II with 25 and 22% respectively, snail farmers in study area were predominantly females (average 57.69%). This can be explained by the fact

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farmers one after the other in these blocks. This was done with the assistance of

that, snail farming requires little labor with no strenuous physical exertion (Goodman 2008), and this may explain why majority of the snail farmers were females. This study agrees with the observation of Ngenwi etal (2010) who found that snail farming in Volta and Great Accra, Ghana, and Southwest Region, Cameroon, was predominantly in the hands of female farmers (60%). This work, however, contrast with the findings of Raheem (2001), Obinaju etal (2016) and Obisesan (2002) who revealed that 76%, 63.3% and 87.2% of the snail farmers are males in Ovo state. Akwa Ibom State and in South Western part of Nigeria accordingly.

No matter the locality, farmers were married with an average of 90.71%. This can be associated to the fact that income generation is more essential to married than single people. This study is in line with findings by Chah and Inegbedion (2012) and Ogunniyi (2009) who reported that 96.7% and 75.5% of the respondents were married in Edo State and Oyo state respectively. All those married were engaged in a monogamous marriage (100%).

It appears on Table 1 that of all five subdivisions, only Buea registered farmers (17%) with household size between 11-15. A greater proportion of the respondent had a household size of 1-5 with an average of 54.44%, 42.22% had household size 6-10 while remaining 3.33% had 11-15 respectively. This might be explained with the fact that all those married are monogamy. Also due to family planning agents in the hospitals and health centers and of the fact that they are well educated because of the University of Buea found in the study area.



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Social	Percentage of respondents per Subdivision								
characteristics	Limbe II	Buea	Muyuka	Limbe I	Tiko	(%)			
Age group									
20 to 40	11	36	25	50	0	24.37			
41 to 60	67	43	75	50	100	66.90			
>61	22	21	0	0	0	8.73			
Sex									
Male	22	64	25	50	50	42.30			
Female	78	36	75	50	50	57.69			
Marital status									
Married	100	79	75	100	100	90.71			
Not married	0	21	25	0	0	9.28			
Monogamy	100	100	100	100	100	100.00			
Household size									
1 to 5	56	42	25	100	50	54.44			
6 to 10	44	42	75	0	50	42.22			
11 to 15	0	17	0	0	0	3.33			
Educational level									
Primary	11	29	25	50	50	33			
Secondary	33	14	50	0	50	30			
Higher	56	57	25	50	0	38			
Care for animals									
Male	22	36	0	50	0	21 59			
Female		50	0	20	Ũ	21.07			
Male, Female									
	11	29	25	50	0	22.94			
	67	36	75	0	100	55.47			
vne of labor Family		20		•	100				
Hired	89	100	100	100	100	97 78			
mu	07	100	100	100	100	21.10			
	11	0	0	0	0	2.22			

Two types of labor were registered; family and hired. Only Limbe II recorded respondent who hired labor (2.22%) of all the five subdivisions. Hence on average, a greater proportion of the respondent used family labor with a percentage of 97.78. This implies that majority of the snail farmers are still practicing on a small scale. This agrees with those of Ogunniyi (2009) who observed that all the farmers in Oyo State, Nigeria used family.

All farmers have had formal education in all sub-divisions as seen on table 1. A greater proportion had attended high school as illustrated. These high literacy levels make city dwellers ready to take risks, and are therefore early adopters of new technologies. This finding is similar to those of Ezeano (2016) and Ogogo *etal* (2010) who observed that a majority of snail farmers attended higher institutions, 52.8% and 71.2% in Enugu State and Cross River State in Nigeria respectively.

As shown on figure 2, Limbe I recorded the highest number of famers who were involved in livestock with 100%, second by Limbe II with 56% and the least from Muyuka (25%). On the contrary, Muyuka occupied the first position when it comes to crop production with 75%, followed by Buea with 71%. This may be due to the fact that Limbe I and II are located along the coast while Muyuka and Buea are the hinterlands with more land allocated



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to crop production. On average, a larger proportion of the respondent (52%) were involved in livestock business unlike 48% for crop farming. This might be because most of the farms were found in urban area with little land available for crop farming.



Figure 2: Distribution of snail famers according to main agricultural activities

Religion, experience and occupation of snail farmers in Fako division

All the respondents in the study area were (Table 2) Christians in line with Ogogo *etal* (2010) that observed 100% of the snail farmers in Cross River State, Nigeria were Christians. This might be because the area of studies is dominated by christians and also because of some cultural and religious restrictions to handling or eating snails (Cobbinah *et al* 2008).Moreover, this farmers had at least one year of experience. Among the five subdivisions, Limbe II and Buea registered 33% and 7% of respondents had experience between 6 and 10 years correspondingly. This means snail farming is still a new venture in the zone of study. This finding is similar to that of Ezeano (2016)who revealed that about 51.7% of the respondents had 1–5years of experience in snail farming in Enugu State.

Different economic activities practiced in the division which includes fishing, food processing, timber extraction, market gardening, oil refining, quarrying and tourism that attracts people to the area reason why occupations are dominated by these activities.

Social	Percentage	e of respo		Average		
characteristics	Limbe II	Buea	Muyuka	Limbe I	Tiko	(%)
Religion						
Christianity	100	100	100	100	100	100
Experience in snail farming						
0 to 5	67	93	100	100	100	91.90
6 to 10	33	7	0	0	0	8.09
Occupation						
Trading	33	14	25	0	50	24.52
Civil service	33	35	25	0	0	18.52
Student	0	21	0	0	0	4.00
Diverse	33	29	50	100	50	52.38

Table 2: Distribution of snail farmers according to religion, experience, occupation and ethnic group

Economic characteristics of snail farming

The result presented in Table 3 shows that only farmers in Limbe II hired labor (11%) for 5000FCFA per month. Therefore a majority (97.78%) of the respondents spent no franc on labor. This confirm that snail farming is a low-cost operation. Still it appears that a larger proportion of the famers with an average 75.48% spent no franc



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in buying feed or food items only 2.22% spent 5000FCFA per month. This is explained by the fact that a majority (55.24%) of the respondents cultivate and beg food items (Table 3). It can also be because the famers are not aware of compounded feed and lack of formula. This work is in line with that of Ogunniyi (2009) and Ahmadu and Ojogho (2012) who observed that snail farming is less capital demanding, entails low cost of production.

Table 3: Repartition of farmers according to expenditure

Economic characteristics	Percentage		Average (%)			
	LimbeII	Buea	Muyuka	Limbe I	Tiko	_ ` ´
Cost of work force per month (FCFA) 5000 No cost	11	0	0	0	0	2.22
	89	100	100	100	100	97.78
Cost of nutrition per month	l					
(FCFA)	0					
1500	0	0	25	0	0	5.00
2000	11	14	0	0	0	5.08
3000	11	0	0	50	0	12.22
5000	11	0	0	0	0	2.22
INO COSL	07	80	15	30	100	/3.48
Acquisition of food items						
Cultivate Cultivate	11	36	25	0	0	14.37
and beg	33	43	50	50	100	55.24
Cultivate, beg and buy Cultivate	44	0	0	0	0	8.89
and buy	0	21	0	50	0	14.29
Beg and buy	11	0	25	0	0	7.22



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Uses of snails, slime and shells

The entries of Table 4 shows that majority (58.97 %) of the respondents were involved in snail farming for sale and home consumption. Thus, snail farming is to generate income as well as to provide a source of animal protein for the family. This finding is in tandem with those of Chah and Inegbedion (2012) who reported that a majority (75.9%) of the snail farmers were involved in snail farming for sale and home consumption.

However, on average, a larger proportion (74.29%) of the fluid is discarded, 15.00% used it in cosmetics while 10.71% considered it to be medicinal (to stop bleeding from cuts). This finding is supported by that of Onuigbo (2015) who reported that the bluish fluid is used to stop bleeding from cuts, healing of amputated fingers, treatment of eye problem and suppression of small pox.

Majority (92.78%) of the famers discard the shells while only 7.22% of them make use of it as an ingredient in feed. This implies that snail farmers steel ignore other utilization form of snail shells.

Economic	Percentage	Average				
characteristics	Limbe II	Buea	Muyuka	Limbe I	Tiko	(%)
Fate of snails/meat						
Sale	11	7	0	0	0	3.65
Home consumption	22	14	0	0	0	7.30
Sale and home consumption	56	64	25	50	100	58.97
Home consumption and gift	11	0	0	0	0	2.22
All above	0	0	75	50	0	25.00
Home consumption and research	0	14	0	0	0	2.86
Fate of slime						
Use to stop bleeding from cuts	0	29	25	0	0	10.71
Use in cosmetics	0	0	25	50	0	15.00
Discarded	100	71	50	50	100	74.29
Fate of shells						
Used in poultry feed	11	0	25	0	0	7.22
Discarded	89	100	75	100	100	92.78

Table 4: Distribution of snail farmers according to the fate of snail farming products

Annual quantity sold

Live snails are sold in buckets of 151 (photo 1) in the study area with the price ranging from about 4000 CFAF in the rainy season to about 15000CFAF in the dry season.



Photo 1: Selling snails on the farm in 151 bucket.

Globally, a majority (25.16%) of snail farmers sold 11-15 buckets annually while only 1.14% sold >20 buckets yearly. In other hand, the snail are sold mostly without any processing (85.48%). Reason for selling period it is the price.



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Economic	Percentage	Average				
characteristics	Limbe II	Buea	Muyuka	Limbe I	Tiko	(%)
Quantity sold(buckets) annually						
1 to 5						
6 to 10	22	14	25	50	0	22.30
11 to 15	0	0	50	0	50	20.00
16 to 20	22	29	25	0	50	25.16
>20	22	21	0	50	0	18.73
None	0	7	0	0	0	1.14
	33	29	0	0	0	12.38
Processed						
Yes	33	14	25	0	0	14.52
No	67	86	75	100	100	85.48
Reason for period of sales						
Increase in price	56	36	75	50	50	53.25
When requested	11	7	25	0	50	18.65
To avoid massive loss during the	0	0	0	50	0	10.00
dry season						
When in need of money	0	14	0	0	0	3.00
When they reach the market size	0	14	0	0	0	3.00
No reason						
	33	29	0	0	0	12.00

Table 5: Distribution of snail farmers according to annual quantity sold and period of sales

Majority of the respondents (60%) sold their animals during the dry season, 24% in both seasons and 16% had no idea of what time of the year they do the most sales (figure 3). Many explained that they sell during the dry season because of high prices (53.25%) and also to avoid massive loss (10.00%) as conditions become unfavorable especially temperature and humidity (Table 6). This result is in line with those of Ogogo *etal*. (2011) observed in Akwa Ibom State, Nigeria that the price of snail increases particularly during dry season.





Form of sale of products

Snail farmers sold their produce either alive (fresh), frozen or smoked. Tiko (100%) and Limbe I (50%) famers sold their animals alive contrary to Buea (86%) and Muyuka (75%) farmers who sold it frozen and Muyuka (25%)



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and Limbe II (22%) farmers sold snail meat smoked. Majority (55.48%) of the respondents sold snail meat frozen, 32.22% fresh and 12.30% smoked (figure 4). This implies that most of the farmers do shelling,

washing and conserve the meat to be delivered to their customers. They might also smoke or conserve the snails for sale when prices are high. ENEDEP (2009) reported that snails can be smoked or stored for sale when prices are very high. They can equally be processed and canned.

Fresh Frozen smoked



Figure 4: Distribution of snail farmers according to form of sales

Annual income, satisfaction and reasons

Entries of the above table 6 reveals that snail farming is an income generating business. A larger proportion (27.20%) of the farmers had an annual income of 100001-150000FCFA, 17.22% had an annual income of 50001-100000FCFA, 15.95% had an annual income of 150001-200000FCFA, 14.29% had an annual income of

>200000FCFA, 12.20% had an annual income of <50000FCFA while 12.38% earn nothing. This is because these ones rear snails for home consumption and at times offer them as gifts to relatives. This result is in contrast to that of Ezeano (2016) who reported that a majority (43.1%) of snail farmers in Enugu State, Nigeria had an annual income of 48387.10-64516.13FCFA.

An average of 58.97% of the respondents said they are satisfied with this activity whereas 41.03% said they are not (Table 6). They are satisfied because of the following reasons; money making business (40.79%), low cost of production (7.94%), source of protein for the household (6.67%) and won many prizes at agro-pastoral shows (1.14) (Table 6). Not being satisfied is as a result of; mortality (15.08%), lack of managerial techniques (18.65%) and knows little about the activity (2.22%).



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Economic	Percentage of respondents per Subdivision							Average
characteristics	Limbe II	Buea	a	Muyu	ka	Limbe I	Tiko	— (%)
Annual income (FCFA)								
<50000	11	0		50		0	0	12.20
50001 to 100000	11	29		0		0	50	17.93
100001 to 150000	11	0		25		50	50	27.20
150001 to 200000	33	21		25		0	0	15.95
>200000	0	21		0		50	0	14.29
Nothing	33	29		0		0	0	12.38
Satisfied with activity								
Yes	56	64		25		100	50	58.97
No	44	36		75		0	50	41.03
Deegen								
Source of protein and income	33	0	0			0	0	6 67
low cost of production	11	29	0			0	0	7 94
Money making business	11	43	0			100	50	40.79
Won many prizes at agro-pastoral	0	7	0			0	0	1.14
shows								
Know little about the activity	11	0		0	0		0	2.22
So many dead	11	14		50	0		0	15.08
Lack techniques	11	7		25	0		50	18.65
No reason	11	0		25	0		0	7.22

Table 7: Repartition of snail farmers according to place of sale and annual contribution

Table 8: Repartition of snail farmers according to constraints effecting snail production

	Percentage of	Average				
Constraints	Limbe II	Buea	Muyuka	Limbe I	Tiko	(%)
Predator	16	26	25	0	0	13.40



Conclusion

Based on the findings of the study on the socio-economic and zoo-technical characteristics of snail husbandry carried out in Fako Division, South West Region of Cameroon, it can be concluded that farmers were educated with at least primary education and were all Christians. Most of the sales are done on the farm with the period of sales being the dry season when prices are especially high (about 15000FCFA per 151 bocket). Snail farming is a profitable venture. The major challenges faced by the snail farmers were; pest attack, predators, lack of techniques, lack of funds, lack of feeds, lack of water, lack of animal supply, slow growth rate and climate change. The States Ministry of Agriculture and Rural Development, through its extension agents, should endeavor to enlighten snail farmers on appropriate ways to handle snail production.

References

1. Ahmadu J, Ojogho O. (2012) The Economic Impact of Snail Farming in Nigeria's Edo State. Volume 4, Issue 5, Pages 26–40, International Journal of Agricultural Sciences Introduction to snails and snail farming by Akannusi O. in 2002. Publishing House: Gbemi Sodipo Press Limited, Abeokuta, 90 pages. [3.] The efficacy of snail farming in Nigeria's Osun State, as documented by Baba and Adeleke in 2006. Volume 4, Issue 1, Pages 147–155, Journal of

Agricultural Food Science, 2006. [4.] For the rural of improving livelihoods. purpose agrodiversity both inside and outside of protected forests was investigated in 2004 by Blay, Ofori, Heloo, Ofori, and Nartey. Characteristics of snail farming in the Edo South Agricultural Zone of Edo State, Nigeria, as reported by Chah J. M. and Grace Inegbedion in 2012. Snail farming: production, processing, and marketing was published in 2008 by Cobbinah J R, Vink A, and Onwuka B. Separately. Agrodok 47 and CTA. The development implications of ceded lands in the South West Region of Cameroon from 1960 to 2010 were examined in a 2016 study by Enp and Fombe. Journal of Advanced Research in the Social Sciences, 3(11), 154–164. (ENEDEP), a program for the agricultural development of Enugu State in 2009 (10.). Snail Harvesting in Nigeria's Enugu State. Worldwide Journal of Agricultural and Biological Sciences, 5, 6, 370–372. Ezeano, C. I. (2016). Difficulties faced by Oji-River LGA smallscale snail producers. [10.] Giant land snails of Africa, by Goodman A. K. (2008). The information was retrieved on April 14, 2013, from the following URL.

The 2007 report "Impacts, Adaptation, and Vulnerability" was prepared by the Intergovernmental Panel on Climate Change (IPCC). Discussions held by Working Group II in preparation for the IPCC's Fourth Assessment Report, Chapter 976, edited by M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson, published by Cambridge University Press in Cambridge, UK. [12.] In 2011, Malik, Aremu, Bayode, and Ibrahim published a paper.A comparison of the nutritional value and flavor profile of meat from various cattle with that from



the massive African land snail (Archachatina maginata swaison). Published in Volume 23, Article #60 of Livestock Research for Rural Development. Get this data on September 7, 2018, courtesy of http://www.lrrd.org/lrrd23/3/mali23060.htm A

http://www.lrrd.org/lrrd23/3/mali23060.htm. А 2017 evaluation of snail farming in certain villages in the Mount Cameroon Range, South West Region of Cameroon, was conducted by Ndah Njoh R, Celestine FB Lucha, Eugene L C, Egbe Enow Andrew, Tata Yengo, and Donald Ngwa Anye. Volume 6, Issue 4, Pages 1-11, 2017; Article number: ARJA.35113. Published by the Asian Research Journal of Agriculture. Section 14. In 2010, Ngenwi et al. published a study in the African Journal of Environmental Science and Technology that examined the traits of snail farmers in the region and the factors that limit their ability to enhance output. The study spanned pages 274 to 278. Obinaju L. C. and Asa U. A. (2016) conducted a case study on snail farming in Itu local government area, Akwa Ibom State, Nigeria, to examine the economics of rural livelihoods. Volume 4, Issue 2, pages 75–85, American Journal Research Communication. of [16.] City Snail Farmers in Western Nigeria: An Urban Agriculture Case Study by Obisesan and Oluseun (2002). This document serves as a thesis for the Master of Public Policy degree. Managing Wildlife in Nigeria: Goals, Concepts, and Practices (Ogogo, 2008, p. 17). Section 280, Median Communications. Calabar. [18.] In 2011 and published in the Electronic Journal of Environmental, Agriculture and Food Chemistry, Ogogo, Ijeomah, and Effiong conducted a survey of snail farming in Akwa Ibom State, Nigeria. The study covered the years 1935–1942. The authors of the 2010 survey on snail farms in Nigeria's Cross River State are Ogogo, Ugogo, Ijeomah, and Ekwere. International Journal of Extension Practice (GAEP), Volume 6, Issue 1 Economic study of snail production in Ibadan, Oyo State, 2009 [20.] Ogunniyi L TArticles 26-34 from the 2009 volume 2 issue of the International Journal of Agricultural Economics and Rural Development. [21.] The effects of feeding on adult snails, by Okpeze C N, 2007. Volume 6, Issue 16, African Journal of Biotechnology. clause 22. Production of

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snails in the Enugu East Agricultural Zone, Enugu State, Nigeria: an economic analysis (Onuigbo, 2015). Department of Agricultural Economics, University of Nigeria, Nsukka, where I earned my Master of Science degree. 99 pages The economic analysis of snail production in Nigeria was conducted in 2001 by Raheem A. A. in the Ogbomoso North and South Local Government Areas of Oyo