Original Research Article

ASSESSMENT OF GRASSCUTTER DOMESTICATION FOR INCOME GENERATION IN ANAMBRA STATE, NIGERIA

ABSTRACT

Grasscutter,(*Thryonomysswinderianus)* locally known as 'Nchi' can generate additional income for farmers and families but its domestication in some Nigeria is still preliminary. This study was carried out in four private Grasscutter farms within four communities; Awgbu, Nanka, Oko, and Omogho in Orumba North Local Government Area of Anambra State, Nigeria, to determine the level of profitability of each farm. Sixty structured questionnaires were administered to the members of the household, fifteen in each farm but only fifty-one (85%) were retrieved and used while nine (15%) were not used. Results shows that 29% of the farmers were men while 22% were female. The largest participants (27.5%) fall within the age bracket 31-40 years, the age of responsibility. The farm in Awgbu community has the highest number of animals (24) while the farms at Nanka, Oko and Omogho, have 11,15 and 22, respectively. The total income each farm generated during the years (2012, 2013 and 2014) were ₦330,000, ₦200,000, ₦125,000, and ₦89,000 respectively. The feed given to these animals include cassava *(Manihotesculenta),* maize (*Zea mays*), pawpaw (*Carica papaya*),elephant grass *(Pennisetum purpureum),* and groundnut *(Arachishypogaea*). The farmers indicated that their main challenges include bad roads, shortage of funds, insufficient space and lack of governmental incentives. These setbacks can be solved by the provision of developmental grants, supply of pipe-borne water, land, feeds and good roads. These can motivate farmers to increase their production to a commercial level, which will yield them more income instead of subsistence domestication.

Keyword: Grasscutter, income generation, domestication, profitability.

INTRODUCTION

Domestication of wild animals is for meat production, improvement of protein supply and prevention of wildlife extinction (Ogunjobi, 2013). In Nigeria and other developing countries, there are major concerns of animal protein deficiency in daily diets (Ekenyem and Madubuike, 2006). According to IUCN (2012), some of the wild animal species with domestication potentials and high demand in the West African Sub-region should be multiplied through

domestication, to reduce pressure on those in the forest. Other advantages include the improvement of economic standard of people, especially the provision of employment opportunities. Grasscutter domestication has high capabilities and potentials for bridging the animal protein gap and reducing pressure on wild population, which is threatened by excessive hunting and destruction of their wild habitat due to deforestation, forest degradation and habitat fragmentation. Farmers who engaged in Grasscutter domestication, especially in Anambra state Nigeria has recorded huge success with the prolific nature of the animal.

Grasscutter or cane rat (*Thryonomysswinderianus)* is a member of the rodent family (Falade et. al. 2010). Rodents are small animals with sharp incisor; examples include rats, squirrels and beavers. Among the rodents, Grasscutter is the biggest bush meat apart from the porcupine *(Erethizondorsatum).* The name 'grass cutter' which means'cutting grass' emanated from its feeding behavior and characteristics (Ewer, 2000). This animal is found throughout Africa, especially in Savanna forest vegetation. The meat is popular in Nigeria and mostly cherished by rural people.

Those in urban areas can get the meat along with high ways and motor parks. It is an important source of income for rural dwellers (NRC,1991). The domestication of Grasscutter in Nigeria is due to the importance of bush meat as part of the staple diet. Conservationists recommend domestication of some wild animal species in high demand (Addo,et. al.2001) in order to reduce pressure on wild animals. The supply of Grasscutter meat is not enough for the populace. The demand is always higher than the supply. It is one of the highest poached rodents in the wild (Ogogo, et. al. 2017). Indiscriminate killing of this animal in the wild brought about drastically reduction of its population in some rural areas. Many hunters use traps, chemicals, guns, poison, bait and indiscriminate bush burning to reduce their population in the wild (Fayenuwo and

Akande, 2002). This is the reason why it is important to rear this animal for meat, income and extinction problems. This research was carried out to access the profitability of Grasscutter domestication in four communities in Anambra state Nigeria.

MATERIALS AND METHODS

This assessment was conducted in four towns; Awgbu, Nanka, Oko and Omogho in Orumba North Local Government Area of Anambra State, Nigeria. The towns have the following coordinates (Latitude 6.1112^0N, 6.0485^0N and6.0363^0N, 6.0827^0N and Longitude 7.0983^0E, 7.0660^0E, 7.0888^0E and 7.1374^0E respectively. One farm was located from each town and the study was carried out in August at Awgbu and Nanka farm and proceeds to Oko and Omogho farm in September 2015. In these farms, the Grasscutters were reared in concrete cages with wire mesh enclosures. Initial visitation was made in each community to find out the time to meet these family members for the filling of the questionnaires. Sixty questionnaires were administered to these families and extended families. Two days were given to them to use and fill the questionnaire because the answers were not so prompt. In the end, fifty-one (85%) were retrieved, six (10%) were not filled and three (5%) were lost. Data were collected on five factors which are bio-data of respondents, size (number of animals) in their farms, income generated for the past three years, the type of feed given to these rodents and domestication constraints/challenges. These data were analyzed using descriptive statistics which include tables, charts, frequencies, percentages, and graphs.

RESULTS AND DISCUSSION

Table 1: Bio-data of the respondents

Data	AwgbuNankaOkoOmogho	Frequency	Percentage (%)
AGE			
10-20	3 1 1 2	7	13.7
21-30	2 2 3 4	11	21.6
31-40	5 4 2 3	14	27.5
41-50	1 2 2 3	8	15.7
51 and above	2 3 2 4	11	21.6
SEX			
Male	8 5 6 10	29	56.9
Female	5 7 4 6	22	43.1
MARITAL STATUS			
Single	6 5 3 4	18	35.3
Married	7 7 10 9	33	64.7

Source: Field work, 2015

Table 1 above shows the age, sex and marital status of the respondents. The highest age proportion was within the age bracket 31-40 years old which was 27.45%, of respondents, coincidentally followed by those in the age brackets 21-30 years old and those above 50 years, (21.57%). Those in the age bracket 41-50 years have 15.69% while the least is within 10-20 years (13.73%). These findings show that Grasscutter rearing is mostly practiced by those within the age bracket 31-40, the age of responsibility. Also, it can also be practiced by jobless youths within the age of 21-30 years old as a hobby according to Weidinger, (2006). Those within retirement age (>51) can rear the animal for income as directed by Olomu et al (2008).

However, there were more male respondents (56.86%) than females (43.14%). This could be that males were more interested in the rearing of this rodent which they normally kill in the forest when hunting, while females prefer to sell other goods in village market squares.

Also, there were more married respondents (64.71%) than single (35.29%). This could be that married people have more responsibilities than single people and reared this animal to support their families financially.

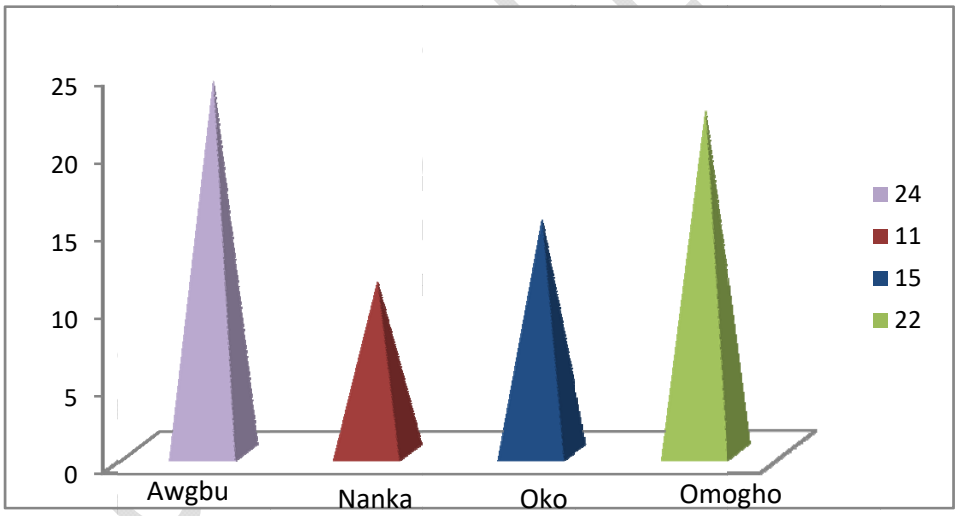

Figure 1: Size (number of animals) in each farm

Figure 1 above shows the number of animals on each farm. The farm at Awgbu has the highest number of animals (24), followed by that of Omogho (22), while the farms at Oko and Nanka has 15 and 11 animals respectively. It was observed that the number of grasscutters in each farm

does not influence productivity in any way. The variation in the number of each farm might be due to management method, age of selling and high demand of the animal. Probably, the highest farm started with the highest number of animals. Despite variation in the number of each farm, it was observed that Grasscutters thrive favorably well on each farm. Only proximity to market and household use is a factor determining the size of each farm, not mortality. The small farm size is an indication that there is a ready market outlet for Grasscutters and its products, either for consumption, research or starting a new farm. This observation corresponds to the National Research Council (NRC, 1991) that approximately 73 tonnes of Grasscutter meat were sold annually at the local market.

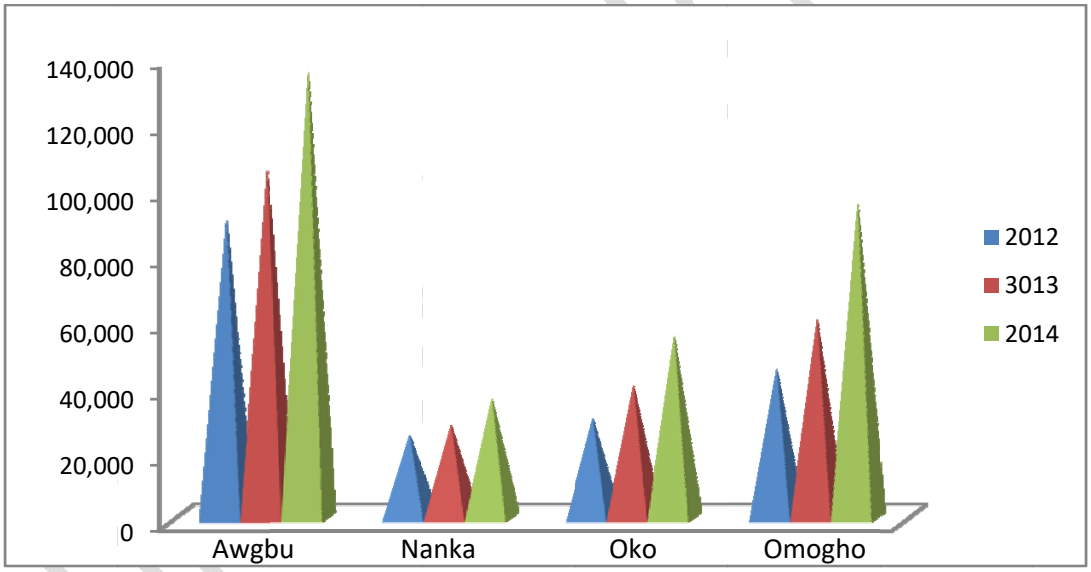

Figure 2: Income generated for the period of three years in these Grasscutter farms.

Figure 2 above demonstrated the total income generated in these farms for three consecutive years, 2012, 2013 and 2014. The farm at Awgbu generated the highest income (₦330,000), followed by the farm at Omogho (₦200,000), the farm at Oko generated (₦125,000) and the least was that at Nanka that generated (₦89,000). Also, each farm generated income according to

the number of animals or the size of the farm. The farm at Awgbu which has the highest number of animals generated the highest income while that of Nanka which has the least number of animals generated the least income. Generally, income increases with an increase in years. This shows that Grasscutter farming is profitable and adds to household income. Fieldwork questions and observations show that the farmers sold these animals in a colony or single. A colony of Grasscutter contains four males and one female and can be sold between ₦75,000 and ₦80,000 while single animals can be sold between ₦7,000 and ₦10,000 depending on the size. The newly wined or young ones cost more than matured ones. The farmers also confessed that there is a high demand for this animal which they cannot meet up.

Table 2: Types of feed given to Grasscutters at Awgbu, Nanka, Oko and Omogho farms

Feed	AwgbuNankaOkoOmogho	Frequency	Percentage
Tubers			
Potato	0 0 13 0	13	25.5
Cassava	13 13 13 12	51	100.0
Grains			
Maize	13 12 13 13	51	100.0
Wheat	0 0 0 13	13	25.5
Millet	013 13 0 26	51.0	
Fruits			
Pawpaw	13 13 0 13	39	76.5
Cucumber	0 0 13 0	13	25.5
Garden egg	13 0 13 0	26	51.0
Forages			
Elephant grass	13 13 13 12	51	100.0
Sugar cane	13 0 0 13	26	51.0
Nuts			

Groundnut	0	13	13	0	26	51.0
Palm oil nut	13	0	0	0	13	25.5

Source: Field work, 2015

The types of feed offered to Grasscutters in farms at Awgbu, Nanka, Oko, and Omogho are presented in table 2. The study reveals that cassava, maize and elephant grass was absolutely (100.0%) feed given to Grasscutters in these four farms, followed by unripe pawpaw (76.5%) as available and affordable fruit. Millet, garden egg, sugar cane and groundnut (51%) were fed in moderation to these animals while potatoes, wheat, cucumber and palm oil nut (25.5%) were fed them as supplementary feed. These

observations could be possible as a result of their feeding habit, described by Rosevear (1969) and Happold (1977). Wogar (2011) also described the feeding habit of this animal as herbivores with a wide variety of feed

Table 3: Challenges of Grasscutters rearing at Awgbu, Nanka, Oko, and Omogho farms.

Challenges	Awgbu	Nanka	Oko	Omogho	Frequency	Percentage
Unbalanced feeding	12	13	13	13	51	100.0
Poaching	13	13	13	12	51	100.0
Inadequate incentives	13	13	13	12	51	100.0
Insufficient funds	13	12	13	13	51	100.0
Poor handling technique	13	0	0	0	13	25.5
Poor breeding stock	0	0	13	0	13	25.5
Grasscutter cannibalism	13	13	0	13	39	76.5
Lack of land	0	0	0	0	0	0.0
Lack of skilled labor	13	0	0	13	26	51.0
Part-time involvement	0	13	0	13	26	51.0

Source: Fieldwork, 2015

The challenges of Grasscutter farming in farms located at Awgbu, Nanka, Oko, and Omogho in Anambra State are presented in table 3. The research revealed absolutely (100%) that unbalanced feeding, poaching, inadequate incentives and insufficient funds were the major challenges of Grasscutter farming in the study area. This could be possible due to poverty in the rural area and partially due to government attitude towards the provision of incentives and basic amenities. It was also discovered that cannibalism (76.5%) among these rodents are high. This could be attributed to poor feeding, especially after litter. Also, the lack of skilled labor (51%) and part-time involvement (51%) were challenges that are militating against Grasscutters in these areas. Similarly, poor handling techniques (25.5%) and poor breeding stock were identified as hindrances to Grasscutter farming because poor handling can cut the tail of the animal, thereby causing pain to the animal. Lack of land (0.0%) was observed not a problem in Grasscutter farming at study sites. This could be possible because the intensive management system of Grasscutter can be done at small available space. This agreed with Weidinger, (2006), Fayenuwo and Akinde, (2002) who stated that unavailability of land should not be a problem especially those who rear it as a hobby.

CONCLUSION AND RECOMMENDATION

This study shows that Grasscutter domestication in Orumba Local Government of Anambra state is possible and can generate additional income to an individual or families that are involved in it. Those in the age group of 21-30 (21.6%) and 31-40 (27.5%)can engage in this business,

especially women and jobless youths.The size of Grasscutter farms can beincreased because the profitability depends on the size of the farms. Also, the climatic condition in the study area is conducive to grow elephant grass naturally. Other agro-by products fed to Grasscutter which can grow well in study sites were tubers, grains, fruits, forages and nuts. Basic amenities like constant electricity, pipe-borne water, incentives and good roads should be provided in the study areas to encourage farmers to expand their farms for more profitable returns. More importantly, public awareness should be done through mass media to encourage more people to rear this rodent for income generation. This will reduce poaching and trafficking of wild ones for environmental sustainability.

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