

Technical and Economic Empowerment Skills Required by Youths in Grasscutter Domestication for Food Security in Enugu State

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Abstract

Original Research Article

The study, empowering youths in domestication of grasscutter for food security was conducted in Enugu state. The study adopted survey research design, using two research questions and one hypotheses tested at 0.05 level of significance. The respondents were 54 (40 agricultural extension staff and 14 grasscutter farmers) which were purposively sampled from a population of 124 (104 extension staff and 24 grasscutter). A structured questionnaire containing 42 items with four point rating scale and response categories such as very Highly Required (VHR), Highly Required (HR) Slightly Required (SR) and Not Required (NR) was the instrument used for data collection. The instrument was validated by three research experts. The reliability of the instrument was determined using Cronbach Alpha and co-efficient index value of 0.77 was obtained. Grand mean with grand standard deviation was used to answer the research questions while t-test was used to test the null hypothesis. The finding was that the youths needed to be exposed to domestication skills in grasscutter farming such as skills in feeding, health management and marketing. They also need to be properly supported financially by government, NGOs, for food security in Enugu State. It was recommended that these skills needed to be packaged and taken to skill acquisition center for youths and farmers who are interested in grasscutter domestication, and the fund should be made available to youths by the government, NGOs, and individuals and that soft loans should be made available to youth for empowerment in grasscutter production.

Keywords: Technical, Economic Empowerment Skills, Grasscutter Domestication, Food Security.

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INTRODUCTION

Desire for animal protein is crucial. Its propensity in enhancement of growth, repair of worn-out tissues and working together with other essential nutrients for upkeep of man cannot be over emphasised. Protein is sourced from animals. Research has shown that there is still shortage of protein supply in Nigeria (Iwena 2008). Owen and Dike (2012) noted that because the source of protein supply in Nigeria is mainly local, the production cannot reach the demand, thus accounting for spending about \$48.4m to import fish to make up. The problem of protein deficiency was not solved even with the huge amount spent on importation. This resulted to man (youth and old) finding other ways of meeting the demand. Many youths went into recovery of abundant varieties of wildlife resources of their favourite rich in protein thereby arising in the rearing of different types of micro wildlife. One of such wildlife is grasscutter.

Grasscutter, *Thryonomys swiderianus*, popularly, called Oya by the Yorubas, Nchi by the Igbos and Gegbi by the Hausa is a hytricomorphic rodent distributed all over African sub-region. It is a small but heavily built animal with round muzzle, small round ears, short tail and hursh bristly fur (Opara, Ike and Okoli 2006). Henry (2011) noted that grasscutters which are otherwise called cane-rats are robust animals measuring about 60cm long, and could weight more than 90kg at maturity if properly managed. Grasscutter meat is favourite to many and account for the greater proportion of bush meat sold in Nigeria. Henry (2011) stated that grasscutter is hunted aggressively for its excellent taste, and high nutritional value when compared to other species of livestock. For instance Omole, Ayodeji, Ashaye and Tiamiyu (2005) noted that grasscutter has high protein content of about 19-23%, and has less fat than most of the domestic animals such as cattle, sheep, goat and pig which has relatively high fat percentage. Opera (2010) also expressed that grasscutter meat is

nutritionally superior to those of domestic animals like goat or sheep because of its high protein to fat ratio and high mineral content of about 22%. The meat quality is leaner and non-cholesterogenic. Due to the high nutritional value of grasscutter, the demand was high. The demand for this small livestock (grasscutter) could be solved through sensitization of youths in the domestication.

Domestication involves the capacity of taming and bringing under control the activities of wildlife by man, because most of the wildlife are aggressive, but could be brought under control over a long period of friendly interaction. Dike and Owen (2012) explained domestication as bringing wildlife under control by man through the process careful handling and breeding to be useful to him. This study regards domestication as the process of controlling and taming the aggressive and unfriendly nature of wildlife such as grasscutter over a long period of time. Domestication of grasscutter is another dimension in livestock industry that could ensure the potential of regular and sustainable animal protein production and also a means of engaging agricultural graduates for food security.

Food security was described by Food and Agricultural Organization (FAO) (1996) as a situation where all peoples at all times have physical and economic access for adequate amount of nutrition, safe and culturally accepted. Tolu 2006 viewed food security as a situation where food is produced to satisfy the nutritional requirement of the masses. Food and Agricultural Organization (1999) accesses all to healthy food and optimal nutrition at all times. Availability of food (grasscutter) through grasscutter production will increase the source of protein for human nutrition. This surplus or wealth may be used to amass an even greater surplus to the requirement via the further acquisition of resources and means of production. Youth interested in agricultural can contribute in food security through recovery of micro animals such as grasscutter that go wild and are wasted through serving as prey for other higher animals, killed by bites of snakes, harsh weather, among others. These waste wild animals could be recovered by domestication.

Garsscutter need to be domesticated because it is socially accepted by virtually everybody unlike other livestock such as pig which is prohibited by the Muslims or snail seen as sacrilege in most part of Enugu State. Grasscutter rearing requires small area of land, especially in areas where there is scarcity of land or areas not good for the growth of crops. Its management is cheap because it feeds on wide range of fresh and dry forage. Okoye and Mensah (2005) observed that grasscutters feed on vegetations and easily convert highly cellulotic materials into valuable animal protein, that is to say, it has high feed conversion efficiency. The potentials of grasscutter farming as a means of food security and recovery of

protein source cannot be overstressed as it would reduce the rate of importation of sea food (fish) and poultry (Turkey) and thus divert the money to other sector of economic. Adu (2002) noted that intensifying domestication and production of wild animals wasting in the forest would increase protein source, alleviate poverty, and create gate-way for food security for the nation. The impact of grasscutter farming is yet to be felt in national development agenda. Though its production has been practiced in Enugu State for some period, the practice is left in the hands of small holder farmers who do not have the skills to increase production, these farmers and interested youths need to be empowered by exposing them to the required skills and supporting them economically to enhance production for food security.

Skill according to Oluka and Onyebuanyi (2017) is the ability to carry a task well, usually gained through training or experience. Similarly, Mbah and Umurhurhu (2016) perceived skill as the ability to make a purposeful movement that is necessary to complete or master a particular task in a given job. Skill empowerment in this study involves exposing and educating the youths in the activities involve in breeding, housing, handling, health management and marketing of grasscutter, while economic empowerment is the act of funding the activities involved in housing, feeding and health management of grasscutters. It does only stop in provision of fund for the construction of hutches (houses for grasscutters), to provide their feed and buy young ones, economic empowerment embraces granting loan, subsidizing inputs like feed, drugs materials for construction, among others. In this study economic empowerment is regarded as provision of fund, granting loan, subsidy of inputs by government, community members, NGOs to enable youth after mastering the required skills in grasscutter production can take off and sustain the production for wealth creation.

As already noted, garsscutter are kept in hutches which are constructed with wire gauze and are placed on a raised platform for easy collection of faeces and for other sanitation exercise (Davide 2014). The hutches need to be ventilated, flood free, noiseless because they are scared from feeding, and mating (Ezike 2001). In their hutch their sleeping section need to be separated from their feeding section to avoid rejection of feed (Ezike 2001). Feeding of grasscutters is paramount for fast growth, increased reproduction, nourishment and survival. Olomu, Ezieshi and Orheruata (2013) noted that grasscutters requires nutrient of the monogratrics which including amino acids, and feed of about 12.2% crude protein. According to Robinson (2013), highly nutrition feeds are vital in early attainment of puberty, ovulation, conception as well as survival of Foetus and improved lactation. As a monogastric herbivore, the source of food is basically 70-80% of the forest such as elephant grass (*pennisetum purpureum*), sugar cane (*saccharum* spp), Guinea grass (*Panicum maximum*),

Gamba grass (*Andropogoa gayanus*) among others. Okpara (2010) noted that they may be fed with kitchen leftovers, fruits such as paw-paw, plantain, pineapple, mango and food crops such as rice, millet, guinea corn, maize, sweet potatoes among others. Supplementary feed such as selected concentrate, by products like wheat bran corn bran, soya meal, brewer waste and regular supply of water is necessary to avoid digestive disorder cause enterotoxaemia (Adu (2002). Good health management skills are necessary for the youth to understand because this is one factor that leads to high mortality and a limiting factor to livestock industry; for this reason, there is need to expose the youths to skills required for routine inspection of the pen to reduce being infected by parasites as well as diseases. Berge (2015) and Vink (2014) noted that when grasscutters properly housed, fed, managed and good sanitation maintained, they attain a reasonable market price.

Marketing of grasscutters is important USAID (2015) stated that agricultural marketing is about finding what consumers needs and then make profit by satisfying their needs. These relevant skills in grasscutters production need to be exposed to the youths via the extension workers who are specifically trained to help the farmers solve their individual and collective farm problems.

Iwena (2015) defined extension workers as those who carry modern farming techniques and research findings to farmers, take the problems of the farmers back to research institute. These extension workers are knowledgeable in grasscutter production and management and can assist youth to acquire these skills via the skill acquisition centers or farm and home visit. Exposing the youths could help meet the demand for grasscutter meat.

This demand has been rarely met through hunting the wild by the use of chase dogs, setting traps, baiting with chemical which harmfully effect on consumers and other untargeted species or by bush burning, resulting to getting only few to serve the large demanding population. The farmers (youth) are ever willing to go into such production that could make them create wealth for sustainability if they are empowered, especially now that the rate of unemployment is high. This study therefore deemed it necessary to determine strategies for empowering youths in domestication of grasscutter for recovery of the wild waste protein to create wealth and remain self-employed. Specifically the study sought to determine:

1. Skill empowerment required by youths in grasscutter domestication for food security in Enugu state.
2. Economic empowerment required by youth in grasscutter domestication for food security in Enugu state.

Hypotheses

One null hypothesis tested at 0.05 level of significance guided the study.

HO₁: There is no significance difference in the mean rating of agricultural extension workers and grasscutters farmers on the economic empowerment required by youth for success in grasscutter production for food security in Enugu State.

RESEARCH METHOD

The study adopted a survey research design and was carried out in Enugu state. The population for the study was 109; this comprised 95 agricultural extension workers and 14 registered grasscutters farmers. 54 respondents which were 50 extension works and all 14 farmers were purposively sampled from four out of six agricultural zones and used for the study. Two research questions guided the study. A 42 itemed structured questionnaire with response categories such as very highly Required (VHR), Highly Required (HR) Slightly Required (SR) and not required (NR) was used for the study. The instrument was validated by three experts and the reliability of the instrument was determined with the use of cronbach Alpha. A co-efficient index of 0.77 was obtained. Grand mean with standard deviation was used to answer the research questions. 2.50 was the bench mark. It was decide that any item with mean score of 2.50 and above was regarded as highly required while items with score below 2.50 was regarded as not required. For the null hypotheses, it was decided that if the calculated t-value is greater than t-critical value of 2.00 at 0.05 level of significance, the null hypotheses is rejected, if otherwise do not reject.

RESULT

The results are presented on the Table according to the research questions.

Research question I

What is the skills empowerment required by youth in grasscutter domestication for food security in Enugu State.

Table 1: Mean with standard deviation of respondents on skills empowerment required by youth in grasscutter domestication for food security in Enugu State

S/N	Grasscutter housing skill	Extension staff 40		Farmers 14		X _G	SD _G	Decision
		X ₁	SD ₁	X ₁	SD ₂			
1	Locate a suitable site for cage construction.	3.09	0.92	3.12	0.77	3.11	0.85	HR
2	Clear area for cage construction.	3.14	0.90	3.20	0.79	3.17	0.85	HR

3	Use block and floor high and solid to avoid burrow and ascape.	3.28	0.65	3.33	0.74	3.31	0.70	HR
4	Use of metal for framing the cage.	3.31	0.75	3.22	0.86	3.27	0.81	HR
5	Provide enough space and ventilation.	3.40	0.59	3.21	0.68	3.31	0.64	HR
6	Separate feeding from sleeping section.	3.29	0.85	3.35	0.78	3.28	.082	HR
7	Use of wire gauze at the base of raised platform for collection of faeces and sanitation.	3.27	0.72	3.16	0.92	3.22	0.84	HR
	Grasscutter feeding skills							
8	Feed grasscutters with grasses.	3.45	0.57	3.58	0.84	3.52	0.71	HR
9	Feed grasscutters with sugar cane	3.09	0.80	3.00	0.85	3.05	0.83	HR
10	Feed grasscutters with kitchen left over.	3.32	0.64	3.29	0.69	3.31	0.67	HR
11	Use fruits to feed grasscutters	3.40	0.63	3.29	0.79	3.35	0.71	HR
12	Feed with tuber crops	3.17	0.47	3.34	0.65	3.26	0.70	HR
13	Feed with legumes	3.11	0.64	3.21	0.71	3.15	0.68	HR
14	Feed with concentrates	3.09	0.90	3.27	0.71	3.18	0.81	HR
15	Feed with pelleted concentrates	3.00	0.88	3.26	0.78	3.13	0.83	HR
16	Provide clean water	3.48	0.50	3.22	0.72	3.35	0.61	HR
	Health management skills							
17	Inspect the cage facilities regularly	3.12	0.88	3.18	1.01	3.15	0.98	HR
18	Wash grasses with water and salt before feeding grasscutters	3.17	0.84	3.43	0.62	3.30	0.73	HR
19	Provide balance diet	3.40	0.66	3.31	0.81	3.36	0.73	HR
20	Avoid noise around hutches	3.52	0.54	3.29	0.84	3.41	0.68	HR
21	Disinfect the pen regularly	3.35	0.65	3.24	0.67	3.30	0.66	HR
22	Provide clean drinking water	3.14	0.90	3.23	0.82	3.25	0.86	HR
23	Disinfect feed and drinking water	3.60	0.49	3.32	0.71	3.43	0.66	HR
24	Administer multivitamin intervally to increase immunity.	3.32	0.71	2.85	0.94	3.09	0.83	HR
	Grasscutter marketing skills							
25	Identify matured grasscutter	3.40	0.66	3.25	0.75	3.33	0.71	HR
26	Sort the grasscutters according to sizes	3.11	0.99	3.04	1.00	3.08	1.00	HR
27	Source for buyers	3.22	0.76	3.25	0.74	3.24	0.75	HR
28	Tag price to each	3.10	0.75	3.40	0.70	3.36	0.73	HR
29	Advertise grasscutters for sale	3.31	0.80	3.22	0.80	3.17	0.80	HR
30	Carryout market survey	3.12	0.71	3.25	0.69	3.29	0.70	HR
31	Sell them alive	3.32	0.88	3.22	0.81	3.11	0.85	HR
32	Smoke and sell	3.00	0.69	3.22	0.86	3.37	0.70	HR
33	Fry grasscutters and sell	3.52	0.54	3.41	0.64	3.48	0.84	HR

The result presented in Table I showed that the 33 identified skills which were grouped under housing, feeding, health management and marketing of grasscutters were skills highly required for grasscutter domestication for food security. The grand mean scores of these items ranged from 3.05 -3.52. These scores are above the cut-off point of 2.50. The grand standard deviation of the items ranged from 0.61 -1.00, indicating

that the respondents were unanimously in their responses.

Research question 2

What are the economic empowerment required by youths in grasscutter domestication for food security in Enugu State?

Table 2: Mean with standard deviation of respondents on economic empowerment required by youth in grasscutter domestication for food security in Enugu State

S/N	Economic Empowerment	Extension staff 40		Farmers 14		X_G	SD_G	Decision
		X_1	SD_1	X_1	SD_2			
1	Sell young grasscutter to beginners at a reduced rate	3.24	0.77	3.22	0.82	3.23	0.79	HR
2	Government provision of fund for hutch/cage construction	3.41	0.68	3.40	0.71	3.41	0.70	HR
3	Provision of drugs, feeds at a reduced rate	2.91	0.68	3.40	0.71	3.03	0.80	HR

4	NGOs to help in funding interested youths	3.00	0.74	3.16	0.74	3.08	0.74	HR
5	Parents support financial of youth who are interested in grasscutter production	3.41	0.68	3.44	0.72	3.42	0.70	HR
6	Government funding skill acquisition bills of youths	3.40	0.77	3.42	0.72	3.41	0.75	HR
7	Sponsoring the activities of experts grasscutter farmers to organize seminar for interested youth in grasscutter production	3.27	0.72	3.16	0.92	3.22	0.84	HR
8	Government sponsoring extension workers to visit youth interested in grasscutter production	3.29	0.85	3.35	0.78	3.32	0.82	HR

The analysis of data presented in Table 2 showed that the grand mean rating ranged from 3.08-3.42. These ratings are above 2.50 which was the benchmark, indicating that the respondents on the view that the statements on items are skill empowerment required by the youths in grasscutter domestication for food security. The grand standard mean deviation ranged from 0.74-

0.94. This indicated that the respondents were close to one another in their responses.

Hypothesis:

HO₁: There is no significant difference in the mean ratings of agricultural extension workers and grasscutter farmers on economic empowerment required by youths in domestication of grasscutter for food security in Enugu State.

Table 3: t-test of agricultural extension workers and grasscutter farmers regarding economic empowerment required by youth in grasscutter domestication for food security

Respondents	N	\bar{X}	SD	DF	Prob	t-crit	t-cal	Decision
Extension workers	40	3.27	0.71					
Grasscutter Farmers	14	3.24	0.79	52	0.05	2.000	0.082	HR

In Table 3, the calculated t- values of 0.082 obtained at 52 degree of freedom and 0.05 level of significance with the t-table value of 2.000 shows that the null hypotheses is not rejected for these items. This is an indication that there is no significant difference in the mean ratings of extension staff and grasscutter farmers, regarding economic empowerment required by youth in grasscutter domestication for food security in Enugu State.

DISCUSSION OF FINDINGS

The findings in research question one revealed that the skills such as ability to locate a place for cage construction, provide enough space, construct cage using block, among others were skills required for housing of grasscutters, while feeding the grasscutters properly, using high quality grasses and other relevant feeds of high nutrient, managing their health through sanitation, administering drugs, provision of enough ventilation and marketing skills were skills highly required by youths for domestication of grasscutters. The finding in cage construction for housing was in line with the findings Garba (2015) who stated that to provide a comfortable accommodation for animals reduces fatigue and paralysis as they would find enough space to exercise themselves. It was also found that skill in feeding of grasscutter such as feeding them with elephant grass, fruits and concentrated feed and forages are highly required by youths. Shimave, Kesiks and Yani (2013) expressed that training youths in activities involved in feeding of both ruminant and non-ruminant animals would increase productivity of the animals thereby increasing the food security of the nation.

It was also found that the marketing skills were highly required by youths. The findings in marketing was in line with Chuks (2015) who affirmed that marketing is the aspect which assures the farmer that he has engaged in worthwhile ventures and that the income gained from marketing process is the dividend of other technical skills he applied in the course of livestock production. It is a crucial aspect that youths need to be empowered with. It was also agreed that youths needed to be exposed in health and general management of grasscutter in by provision of balance diet, wash feed before feeding them, inspection of cages, provide clean drinking water, administering multivitamins and place them in noise free area to enhance mating, feeding and nursing of the young ones. Okorie (2002) stated that most farmers expose their animals to death as a result of poor sanitation. Health is wealth as they say. If the animals should be exposed to poor health management, the farmers would not make profit and hence could not create wealth for themselves and the nation.

Further in research question two, which was on the economic empowerment of youth, it was found that youth needed to be provided with soft loan, subsidy for young grasscutters farmers, drug and allocation of space for grasscutter domestication. It was also found that government, NGOs, individuals, parents need to support the youths economically through provision of fund for the youths to take off and stabilize in grasscutter domestication. These finding are in line with Okoli and Okoli (2014) who noted that for any business to stand it should be properly funded, else the business would not

last. The author also expressed that such fund could be loans, fund by government and individual support. If youths are empowered through provision with enough funds they could have resources for grasscutter domestication for food security.

CONCLUSION

Grasscutter domestication has been identified by the study as a lucrative venture capable of providing food security. It was found that for the youth to be effective in grasscutter domestication, they need to acquire skills in cage construction for housing, feeding of grasscutter, health management and marketing of grasscutter. The youth also require economic empowerment (financial support) to enable them take off and stabilize in the production for food security of the nation.

Recommendations

The following recommendations were proffered:

1. Youth who are interested in grasscutter domestication should be exposed to skills in housing, feeding, health management and marketing of grasscutters for self-employment and wealth creation in Enugu State.
2. Youths should be supported financially by government, NGOs, parents; individuals to enable them go into and remain in grasscutter production for wealth creation in Enugu State.
3. The identified skills should be packaged and kept in the skill acquisition centers for interested Nigerian in grasscutter production.

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