

Utilisation of grasscutter for household protein intake



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Abstract

Sustainability in Nigerian Agriculture with preference to grasscutter production was examined in this study. The study is considered necessary due to insufficient information on the subject, ineffective reforms embarked upon by government, individual and donor-sponsored animal production projects in the tropics at various levels and scale of production the stock that has little impact. Grasscutter is an herbivore and so can feed conveniently on some forages, crop residues (e. g. rice straw), agro-industrial by-product and kitchen leftovers. Some fodder species that can also be fed to the animals are Pennisetum purpureum (elephant grass) and Panicum maximum (guinea grass). It is concluded that grasscutter production which is suitable for backyard family production offers a great potential for increased food security, income generation, employment opportunities and above all, provision of high quality animal protein intake.

INTRODUCTION

Animal protein intake is dismally low in less-developed countries than in the developed countries. The Food and Agriculture and Organization (FAO) recommends a minimum of 70g of protein daily per caput, out of which at least 35g (50%) should come from animal protein, but the average Nigerian consumes 10g of protein with 3. 2g of this amount from animal protein. Pathetically, Nigeria with population of about 140 million, the highest in Africa, has the highest number of under-five mortality. These deaths occur because of low protein intake. To bridge this gap therefore, all reasonable and practical options deserve thorough consideration. Micro-livestock such as rabbit, guinea pig, grasscutter, giant rat, iguana and pigeons have been

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suggested by Vietmeyer (1984) as rapid means of obtaining animal proteins. The grasscutter is the second biggest wild rodent after porcupine in Africa. About 40, 000 tons grasscutter meat per year is consumed in West Africa of which only 0. 2% is provided by domesticated grasscutters. Its meat, said to resemble that of piglets is greatly appreciated and highly favoured in West and Central Africa (Adjanohoun, 1988). The grasscutter belongs to the mammalian order and family of Rodentia and Tyronomyidae, respectively and is genetically more closely related to the porcupine than to the rat.

The expanded demand for grasscutter meat currently poses the greatest threat to its very genetic survival, although the species is currently classified as unthreatened according to the FAO's world watch list (FAO, 2000). The populations of wild grasscutters in West and Central African countries are declining due to over-hunting and destruction of their habitat. In order to ensure their sustainable existence and use, their domestication at this juncture is therefore inevitable, given the fact that some success in domestication has been achieved in this region (Mensah, 1985).

Physical Characteristics of grasscutter

Grasscutters are strictly herbivores, and prefer mainly thick-stemmed grass species (Schrage and Yewadan, 1999). Grasscutter (*Thryonomys swinderianus*) also known as cane rat among some people is one of the best animals now domesticated in Nigeria as well as in other sub-Sahara part of Africa. With grasscutter farming, income generation from the initial establishment would continue to flourish because of its fast generation of income. The animal has many traditional names depending on the tribe.

Among the Yorubas, it is known as Oya, while some people called it Obije, <https://assignbuster.com/utilisation-of-grasscutter-for-household-protein-intake/>

Nohi as well as Gafya. It is a heavy, compact and the largest African rodent after the porcupine (*Hystrix Cristata*). When fully grown, the body length varies between 42 and 58cm. its tail measure between 22cm and 25cm and standing height is between 23cm to 30cm. The average adult weighs about 3kg for female and 4. 5kg for males making grasscutter to have an outstanding weight than average matured broiler with lesser capital involvement.

Breeds

Although many varieties of grasscutter have been described, they belong to two different species: Smaller grasscutter (*Thryonomys gregorianus*), as described by Thomas (1894) which is smaller in size and may reach 8 kg and a body length of 50 cm and has a shorter tail. They are found in savannas in Cameroon, Central African Republic, Zaire, Sudan, Ethiopia, Kenya, Uganda, Tanzania, Malawi, Zambia, Zimbabwe, Mozambique and southward to Rhodesia while Larger grasscutter (*Thryonomys swinderianus*) Thomas, 1922 which is of greater size, weighs 9 kg or more and has a head-body length up to 60 cm, a rather long tail and spread from Senegal to South Africa (all countries of west, east, and southern Africa).

Breeding and Reproduction

Grasscutters are induced ovulators (Stier, et al. 1991; Adjanohoun, 1993; Addo, et al. 2001) and breed all year round (Asibey, 1974). Therefore no consideration was given to the time of mating. The female grasscutter is known as doe while the male is known as buck. Puberty in female is attained from 5 month and male from 7th month. The female should not be put to

service until 6 month of age and live-weight of about 1. 5kg while male can be used for first service from age of 8 months upwards at about 2kg.

Some important factors that can affect the reproductive performance of grasscutter are nutrition, lighting regime, stress, and lack of water. The pregnancy or gestation period is 145-167 days with an average of about 150 days (5 months). The gestation period reduce with successive pregnancies. The grasscutter is capable of breeding two times a year. The litter size (number of young ones per birth) varies between 1-7 with an average litter of 4. The doe has no definite oestrus cycle. The incidence of post partum oestrus (i. e. occurrence of oestrus just after giving birth) suggests that the grasscutter can be mated immediately after parturition (giving birth).

The recommended mating ratio is one male for every three to six females.

MANAGEMENTAL PRACTICES

Housing

Before the purchase of grasscutter, a place to house them must have been provided. Under the intensive system, grasscutter may be housed in a container, hutches or deep litter. However, house or building is required for grasscutter. Grasscutter buildings are built to protect the animals against rain, winds, theft, predators, and escape etc. Buildings (houses) should be located in clean and stress-free areas. The infrastructures consist of stable and pens equipped with cages and/ or floor hutches. Other stable and pen equipment indispensable to successful grasscutter husbandry in the intensive system of rearing include feed troughs/mangers, watering place and restraint cages

Cane- rat housing should be located far from very noisy environment to avoid stress, should be far from bad odour to prevent illness, and should be close to the residence of the breeder to ensure security, close monitoring and supervision.

There are two main types of cages Colony Cages: used for rearing grasscutter in groups and individual cage: used for rearing uncastrated adult male grasscutter and also a quarantine area for sick or injured grasscutters.

Colony cages dimension: L * W * H : 2m * 1m * 0. 4m. Entrance : - L * W : 30cm * 25 cm. Two entrances on each side is recommended.

Individual cages : Dimension :- L * W * H : 0. 5m * 0. 45m * 0. 30m.

Entrance :- L * W 18 *18

Feeding management

Grasscutter are herbivorous animals whose source of food is basically 70 to 80 per cent from the forest. Their major food is Elephant or Napier grass (*Pennisetum purpureum*). They also love to eat certain gramineous plant with thick succulent stalks such as Sugar cane (*Saccharum spp*), Guinea grass (*Panicum maximum*), Gamba grass (*Andropogon gayanus*), Congo grass (*Brachiaria ruziziensis*) as well as dried leaf of *Leucaena leucocephala* i. e. hybrid tamarind.

The animal also like *Gliricidia sepium*, herbaceous legumes like *Stylo* (*Stylosanthes gracilis*) and *Pueraria phaseoloides*. The root and pitch of oil and coconut palms, bark of the *anacardium* and fruits such as half ripen pawpaw, plantain, pineapple, mango etc are their delight. Food crops such

as groundnut, rice, maize, grain legume, tubers like cassava, sweet potato etc also make part of their food.

They can also be fed with formulated concentrates like pellet as well as other processed by-products like wheat bran, corn bran, groundnut, soya, oilseed, cotton seed cakes, brewer yeast, grain legume pods, brewers' grains, maize and cobs, brewer's yeast etc as feed supplements. Fresh formulated feed should be placed in the feeder every day.

Irrespective of the kind of forage, grasscutters eat stalks before any other part, the next is the bark of twigs and finally some leaves. This eating habit causes wearing of the animal's teeth which unfortunately leads to high forage wastage. The grasscutter does practise coprophagy, when it is hot, water intake is reduced, and when the outdoor temperature is low, the animal drinks much more. (Baptist and Mensah, 1986; Holzer 1986; Holzer et al. 1986; Adjanohoun 1988; Mensah et al. 1986; Mensah 2000). The reason for this rather unexpected behaviour is however not yet fully understood and should be a subjected for further research.

Water Consumption:

This is determined by an environmental factor (the quantity of water in the atmosphere) low temperature and less forage leads to high rate of water been consumed, and vice versa.

HEALTH AND DISEASE MANAGEMENT

Preventive measures

In order to prevent grasscutter from diseases, the following principles must be adhered to strictly:

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Only healthy stock should be acquired.

- Grasscutter should not be raised together with other types of animals in the same building.
- Rats and wild birds are agents of diseases and should be kept out of the animal house.
- Adequate control of temperature, humidity and ventilation in the animal house should be maintained.
- Keep the house (within and outside) clean. Feeding and water troughs should be washed regularly.
- Restrict movement of visitors in and out of the house.
- Isolate any sick animal from the group.
- Any dead animal should be removed immediately.
- Feed nutritionally balanced diet.
- Observation and proper records can also be of help.

Significant Diseases of Grasscutter

Enterotoxaemia: This is caused by bacterium *Clostridium perfringens*. The organism produces toxins which are absorbed into the circulatory system of grasscutter causing mortality. Vaccine against this condition is available.

Antibiotics can be used for treatment.

Coccidiosis: This is caused by organism of the *Eimeria* family. Symptom of the disease include diarrhea and prostration. Drugs for treatment are available.

Staphylococcaemia: This is caused by a bacterium, *Staphylococcus aureus*.

Most of the signs of this disease are seen at post mortem but discharges

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from the nostrils and vagina could be seen. Antibiotics are also employed in its treatment.

Pneumonia: This is caused by a bacterium, *Diplococcus pneumonia* and it is prevalent during the cold weather. Aspiration pneumonia could also occur through the inhalation of feed dust.

Worm infestation and Ectoparasites like ticks can also affect grasscutter

Influence of Grasscutter Production on Sustainable Agricultural Production in Nigeria

Grasscutter can serve as a source of food or protein, as the meat of grasscutter can be compared favourably with those of domesticated livestock species. According to Olomu et al. (2003) grasscutter had the highest protein content and lowest fat of 22.7% and 4.2% respectively when compared with rabbit 21.0% and 6.5%; chicken 19.2% and 6.1% and pig with 15.1% CP and 31.0% fat. The meat is also preferred for its tenderness and taste. It can also serve as source of income and employment, as one can depend on grasscutter for his livelihood. In fact, grasscutter can provide job opportunities for both urban and rural dwellers who can be engaged in various aspects of grasscutter production like rearing, processing, transporting, cold storing, hutches building and marketing of grasscutter products.

Pancreas of grasscutter is believed to have high concentration of insulin which is a good material in the pharmaceutical company for the local preparations in the treatment of diabetes.

Recommendations

Government, Non-Governmental agencies and religious bodies can help to organize training in grasscutter production in order to eradicate idleness and hopelessness in the country.

Financial crises and crime rates can be reduced in the country when larger citizen especially the unemployed are self employed through grasscutter production.

The government should establish a national grasscutter Program with the broad aim of boosting grasscutter production in Nigeria.

Grasscutter keepers should also organize themselves into cooperatives where they can have access to some loans and subsidies.

Marketing of grasscutter and their products need to be promoted to sustain the economic initiative of the producers.

Unemployed youths can be motivated by government, Non-Governmental agencies and religious bodies by training them and making funds available to them.

Conclusion

Grasscutter production can provide impoverished urban population and the poor rural dwellers the opportunities to meet part of their total protein intake and earn additional income. The grasscutter can be a potential money-spinner if properly managed. In order to achieve this, government, Non-

governmental agencies, academics, individuals and planners will have to prepare a well-coordinated action plan to promote grasscutter production.