

## Small Ruminants Production and their Uses Among Farmers in Nigeria: A Review

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### Abstract

*The paper reviewed small ruminants production and their uses among farmers in Nigeria. It reported that most small ruminant keepers practiced semi-intensive management system whereby the animals are provided shelter and kept indoors for security purpose. Sheep and goats are kept for a variety of economic reasons including savings and investment, security and insurance, stability, and social functions. The small ruminants are also important in the socio-cultural lives of the farmers. Farmers keep small ruminants for income, meat, manure and religious/cultural reasons. The paper identified the major constraints of small ruminant production to include the cost of feed, inadequate extension services and diseases.*

**Key words:** *Farmers, Production, Small ruminants, Uses*

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### INTRODUCTION

Ruminants are the animals that have a digestive system that is uniquely different from other animals. Instead of one compartment to the stomach they have four with "cud-chewing" behavior. Many different species of ruminant animals are found around the world. These include cattle, sheep, goats, buffalo, deer, elk, giraffes and camels. Small ruminants are varied, however, goats and sheep are the only domesticated small ruminants and were the first of the ruminants to be domesticated in southwestern Asia and distributed in various parts of the world [4]. Small ruminants are considered easy to rear and they form an important economic position, especially in small scale farms [10]. Dossa *et al.* [10] added that this is due to their adaptation ability, easy to care for and efficient use of pasture coupled with readily available market. In most developing countries, the ownership of small ruminants varied from households, farmers with mixed farming activities to some landless agriculture migrant workers. Sheep and goats are kept around the homestead or on small farms in villages and small towns. For instance, in Northern Nigeria, sheep are kept by pastoralists who depend on very large herds of small ruminants for one attribute or the other. Generally, small ruminants are highly adaptable to a broad range of environment, require less capital investment in building houses and buying other materials required for their upkeep, space and maintenance [15]. The distribution of small ruminant animals (sheep and goats) varied according to climate management systems and their susceptibility to disease in their environment [12]. They added that in Nigeria, small ruminants'

production is of secondary importance to crop production; hence, small ruminants are widely distributed among the rural populations.

Majority of the sheep population in the country are owned by small-holder rural livestock farmers, a few are still in the urban areas [17]. Sheep and goats constitute a good source of family income and livelihood, assets and agricultural resources for smallholder farmers [21]. This makes small ruminant farming an important and secured form of agricultural investment to the Nigerian rural and urban farmers [4]. Small ruminants production is regarded as a venture meant for the poor segment of the society, because of their relative low initial investment cost. Sheep and goats have a better advantage over the large ruminants due to their easy adaptation to the environment. They can adapt to a broad range of environments and efficiently utilise poor pasture and forage. They can equally be fed with household or domestic kitchen waste and leftover foods. As a result of this, the proportions of small ruminants to their larger counterparts tend to increase [11].

The paper described the systems of small ruminant production in Nigeria. The paper, then explored the uses of small ruminants in household's social and economic security. Finally, constraints to small ruminant production were described and then conclusion drawn.

## **SYSTEMS OF SMALL RUMINANT PRODUCTION IN NIGERIA**

### **Extensive system**

Under this system, sheep and goats are allowed to roam about scavenging for food (forages). The animals raised under this system are very destructive to crops. Animals are often prone to disease, risk of theft and parasites infestation [24]. The small ruminants are however managed on the free range/extensive system in Nigeria where crop farming dominates the agricultural practices and with farmers keeping an average of 10 sheep and/or goats [16]. Under the free range system, the animals move about freely to feed on forages/grasses, which are abundantly available during the raining season, and on other feed source such as left over foods/ kitchen wastes and refuse dumps. Hardly are the animals provided supplementary feeds and even shelter by their keepers. The animals, thus squat around corridors or available shades in the compounds. Animals under this system of management may be feeding on whatever eatables that might come their ways, including live crops, during the dry season when pastures must have dried out.

### **Semi – intensive system**

This system allows for zero- grazing and tethering of the animals. The animals are housed and often released for grazing and browsing of forages. Some households or livestock keepers maintain semi-intensive management system whereby the animals are provided shelter and kept indoors for security purpose. The animals somehow have their movements regulated and as such are released to fend for themselves in the early and late hours of the day, after which they are kept indoors over the night. As it were in the extensive or free range system, the animals feed on natural pasture and kitchen wastes or by-products of processed foods/farm produce, especially during the rainy season. Although, hardly are the animals under semi-intensive management provided supplements or essential ration for consumption, efforts are made by their keepers to feed them with by-products from farm produce, especially during dry season when pastures are hardly available for free grazing. Some of the small ruminants are kept on a 'modified

intensive management system' whereby the animals are mostly tethered or kept in a guarded enclosure and fed on cut-and-feed forages and by-products of farm produce.

Garba *et al.* [13] studied the pattern of small ruminants ownership and management by agro-pastoralists within peri-urban Kano, semi-arid –Nigeria. The study indicated that many of the respondents (30%) indicated the use of the semi-intensive system of production as a tradition inherited from previous generations. Sources of feeds for the livestock as reported by respondents was mainly from crop residues and purchase of supplements (42%) while only 16% of the respondents reported cut and carry as their major source of livestock feed.

Fakoya and Oloruntoba [12] studied the socio-economic determinants of small ruminants' production among farmers in Osun State, Nigeria. The study showed that most farmers (57.50%) employed semi - intensive system. Small ruminants are kept around the homestead or on small farms without large fodder. Ahmed and Egwu [4] studied management practices and constraints of sheep farmers in Sokoto State, Northwestern Nigeria. The analysis of the sheep management system in the area indicated that 59.50% of the respondents kept their sheep under semi-intensive system of management, followed 36.80%) who practiced extensive system [4]. Only 3.70% respondents practiced intensive system.

According to Girei and Ayoola [15], only 15% practiced semi intensive system of management in Adamawa State, Nigeria. In the same vein Alufohai *et al.* [5] stated that, majority of small ruminant farmers in Nigeria practiced extensive management system, where the animals depend on forage due to high cost of concentrate. Fakoya and Oloruntoba [12] studied the socio-economic determinants of small ruminant production among farmers in Osun State, Nigeria. The study showed that most farmers (57.50%) employed semi intensive system. Small ruminants are kept around the homestead or on small farms without large fodder. Majority (97%) of the respondents practiced semi-intensive system of goat production in Igabi, Chikun and Kajuru Local Government Areas, Kaduna State, Nigeria [2]. The prominence of semi-intensive system of goat production in the study area might be an attempt by the respondents to curtail the high losses due to accident and theft associated with the free range system. According to Aphunu *et al.* [6], majority (86.7%) of the farmers practiced the tethering (subsistence) system. This relative high adoption of this system serves as a check to destruction of farm crops by these animals. The tethering system of small ruminants' production according to Bayer [8] is frequently practiced, involves taking the animals out in the morning and tethering them to stakes where they are allowed to graze on pastures unsupervised till evening. These animals are brought back to their thatched pens near the homestead where they are also tethered for security.

The semi-intensive system of management being more popular could be used to deduce that agro-pastoral farmers practice semi-intensive livestock production since they have homesteads, practice some crop farming and livestock rearing as this is a good opportunity for provision of housing and supplementary feeds. The use of crop-residues and purchase of supplements being the major sources of feeds, further infers that crop-livestock linkage approach (as semi-intensive) qualified the production system as a veritable means of improving livestock productivity in Nigeria.

**Intensive system:** Sheep and goats under this system are usually managed by government establishments with concrete floors, while in villages the floor is usually rammed with clay or earth. The supporting materials could be made from plant materials or concrete walls laid round the pen. The roof is made of thatch materials in villages and corrugated iron sheets in cities and government/university farm centres. Feeding and watering troughs are provided based on the stock strength. The animals are often fed with concentrates and mostly on roughages. Fakoya and Oloruntoba [12] studied the socio-economic determinants of small ruminants' production among farmers in Osun State, Nigeria. The study showed that very few (7.55%) practiced intensive system. According to Girei and Ayoola [15], only 10% practiced intensive system of management in Adamawa State, Nigeria.

### **THE USES OF SMALL RUMINANTS IN HOUSEHOLDS**

The small ruminants play significant roles in the social and economic wellbeing of the Nigerians in various ways. The social and economic roles small ruminants play in Nigerian rural societies are explained in terms of social security and income generation. They are considered as savings account, especially for women in rural areas. Small ruminants are much easier and quicker to sell than cattle, when cash is needed to meet households' requirements. Now, more specialized systems of goat production are developing in response to increased market opportunities. The growing demand for goat meat from city residents presents an opportunity for goat fattening systems. These uses are as follows:

#### **Economic Uses**

The importance of small ruminants in income generation and households' social and financial security are well established in the literature [1]. Small ruminants have distinct social and economic uses. From the socio-economic perspective, small ruminant production is a source of investment and instrument against disaster [20]. Small ruminants are used in ceremonial feasting and payment of social dues. In the religious circle, sheep are used by Muslims to fulfill religious obligation and goats as a source of protein. Ugwu [22] posited that small ruminants play an important role in the economic life of the small holder farmers, converting low cost inputs to high value products (meat, milk and skin).

Economically, low individual values mean a small initial investment and correspondingly small risk of loss by individual deaths. Moreover, sheep and goats are kept for a variety of economic reasons including savings and investment, security and insurance, stability, and social functions. The use of sheep and goats as a continuous source of protein during and immediately following a period of drought is one major reason for making them the most important component of livestock production system [25].

About 35% of the total Nigerian meat supply comes from small ruminants [8, 9] and almost 30 percent of the total meat consumed in the semi-arid zone is from small ruminants [25]. Also, small ruminants provide cultural and economic benefits for households. In the same vein, while a 10 to 15 kg small ruminant carcass is easily handled by a rural household for either home consumption or sale without means of preservation, slaughtering even a steer (when it is available) for the same purposes is generally impracticable and uneconomical and is therefore a

rare event. Where access to cash is limited and livestock marketing is not organized, small ruminants are directly exchanged for grain.

Small ruminants are also kept by poor rural households for ready cash income to meet immediate needs such as acquiring agricultural inputs, paying school fees and purchasing larger animals such as cattle. This is because rural households find it easier to find a buyer for a goat or a sheep than a cow. More importantly, small ruminants play a key role in stock association building between members living in the same community in rural areas [23].

In Nigeria, Oluwatayo and Oluwatayo [20] indicated that most of the ruminant farmers (67.7 percent) had their income generated from their involvement in small ruminants rearing. This helped them significantly to attend to other important issues in the welfare of household members since the income generated from other sources is not enough to cope with increasing demands on the home front. They added that, small ruminants rearing has provided a leeway for important unforeseen financial demands like paying hospital bills (10.4 percent) and assisting relations in emergency situations (7.8 percent). The study reported that most of the households surveyed rely on income from small ruminants' sales especially when there is scarcity of food either due to lean harvest or when the stock of available food is exhausted. Again, a sizeable number of the respondents rely solely on small ruminants rearing in paying the school fees of their wards. This is done in such a way that the repayment plan of any money borrowed/loan taken to meet this important obligation coincides with the time these animals are ready for the market (i.e. attain market weight).

### **Social Uses**

Small ruminant rearing is not only important for economic reasons [11]. Small ruminants are often slaughtered in honor of a special guest, a visiting friend or relative, for festivities and religious rituals. It is also important in the socio-cultural lives of the farmers. Farmers keep small ruminants for income, meat, manure and religious/cultural reasons. Farmers indicated that small ruminant rearing helps them to generate income which is used to pay for their wards' school fees, buy school uniforms, pay medical bills, and purchase foodstuff during the lean season. Small ruminants are an important source of protein during festivities such as Christmas, New Year, Easter, *Idil fitr*, *Idi adha* and out-door ceremonies. Small ruminants are also sacrificed during cultural festivities and religious celebrations such as *Idi Fitr* celebration among Muslims where rams are sacrificed.

Socio-cultural value of the ruminants varied across the country. However, the small ruminants still found value in sacrificial offerings among the traditional worshippers in Nigeria. Up till now, goat, specifically doe, constitutes traditional requirement as part of bride price and the animals are kept in memory of the enacted marital relationship between in-laws. Unlike beef and mutton, goat meat are generally considered and consumed as delicacy. Unlike the devalued state of the socio-cultural value of the small ruminants in Nigeria, sheep and goats remained relevant as measuring tools of social status and economic strength among the rural households in the the country.

From the foregoing, one can no longer overlook the importance of small ruminants in the economy of Nigeria. The sheep and goats allow poorer households to maintain their subsistence calls for an urgent need to examine how important they are in contributing to households' well-being. As Gatenby [14] put it, "if the aim of a development project is to raise the living standard of the poorer sectors of the community, it is much more likely to do so if it concentrates on the production from small ruminants".

### **CONSTRAINTS OF SMALL RUMINANT PRODUCTION**

Fakoya and Oloruntoba [12] studied the socio-economic determinants of small ruminant's production among farmers in Osun State, Nigeria. The study presented identified constraints to small ruminant production by farmers. However, when the constraints were ranked in order of severity by farmers, lack of assets such as capital/credit (93.33%), lack of access to land (90.83%), pests and diseases (86.7%) and feed shortage (81.7%) featured as most serious constraints. Security of land tenure is the key to having control over major decisions in agriculture and livestock production: what technique to use, which products to sell and which to consume are examples.

Aphunu *et al.* [6] studied small ruminant production constraints among farmers in Ika north-east local government area of Delta State, Nigeria. The farmers' perceived constraints associated with small ruminants' production in the area. The results showed the mean scores of perceived constraints associated with small ruminants' production. It showed that high cost of drugs/vaccines (mean score = 2.68), inadequate information on improved management practices (mean score = 2.55), irregular demand for small ruminants' products (mean score = 2.53) and inadequate finance to expand herd size (mean score = 2.52) were among the major problems facing small ruminants' farmers. Other constraints include cost of construction materials (mean score = 2.52), unavailability of labour to look after the flock (mean score = 2.50), lack of space (mean score = 2.37) and theft (mean score = 2.35).

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Ahmed and Egwu [4] assessed the management practices and constraints of sheep farmers in Sokoto State, Northwestern Nigeria. The study identified the major constraints that included the cost of feed (19.6%), seasonality of feed (17.7%), inadequate extension services (14.9%), disease and vaccination problem (14.2%), cost of veterinary care (11.5%) and weather/climate

(10.0%). These findings agree with the reports of Muhammad *et al.* (2008) who identified these factors as constraints to sheep production in Nigeria. Other constraints listed by farmers included scarcity of water, thefts and accidents and scavengers. These constraints could be addressed collectively by farmers coming together to form cooperatives groups with the assistance of government.

## 6.0 CONCLUSION

The sheep production system is predominantly extensive and semi-intensive in Nigeria. The place of small ruminants in meeting social and economic needs of farmers in Nigeria cannot be overemphasized. This is closely connected to the different roles that these animals play in providing a sigh of relief, especially when there are production shortfalls or unexpected contingencies resulting from ill health, changes in government policies, etc. It is a well known fact that these animals are the easiest and readily accessible means of coping with shocks. Major constraints such as high cost of feed, seasonality of feeds, inadequate extension services that sheep owners faced are constraints to manage small ruminants in Nigeria.

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