

THE POTENTIALS OF SMALL RUMINANT PRODUCTION IN CROSS RIVER RAIN
FOREST ZONE OF NIGERIA: A REVIEW

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ABSTRACT

Small ruminant animals include Goats (*Capra hircus*) and Sheep (*Ovis aries*). Some tropical breeds of goats are the West African Dwarf (WAD), Sudanese Desert /Nubian, Maradi (Red Sokoto), Black Bengal and Barbari. While sheep breeds include Y'ankassa, Ouda /Uda, Balami and WAD sheep. The commonest breeds of goats and sheep in Cross River Rain Forest Zone are the West African Dwarfs for both species. These animals are compact with a special attribute of being trypanotolerant. Some northern breeds e.g. Red Sokoto goats and Y'ankassa sheep as trade animals abound in major towns in the zone. The animals are highly priced in the area as they provide household meat for consumers and skin for the local leather industry. Goats have been reported to contribute 16.0% and Sheep 5.0% of total domestically produced meat in Nigeria, which has been estimated at 813,000 tonnes per annum. Sheep and goat skins have been estimated at 7,500 tonnes and 20,400 tonnes annually respectively. Milk from Sheep and Goats has been accepted in most developed countries as an alternative to cow milk and their contribution stands at 46% of the world total production of 7.3 million tonnes for sheep and 40% of the total world production of 7.2 million tonnes for goats in both the tropics and subtropics. Goat milk for instance has been reported to contain more β -casein and less α -casein than cow milk. The milk is easily digestible, because it contains a higher proportion of short and medium chain fatty acids with smaller globules than cow milk, which makes it promising in relieving stress and constipation. These small ruminants can be raised through the traditional free range, semi – intensive and intensive systems in the Cross River Rain Forest Zone so as to mitigate the common problems of protein deficiency, poverty and unemployment among the populace in the area and Nigeria in general.

KEYWORDS: Goats, Sheep, Breed, Meat, Skin, Milk.

INTRODUCTION:

Sheep and goats play a significant role in the food chain and overall livelihoods of rural households, where they are largely the property of women and their children (Lebbie, 2004). These animals can be reared for various reasons such as income generation, religious purpose, household consumption and hobby and as security against crop failure. According to Adu *et al.* (1996) small ruminants in Southern Nigeria are integral component of the household, where they contribute to the cultural, food and socio-economic life of the people. While Upton (1984) stated that the potential returns from sheep and goat keeping under the traditional management system are high. In South West Nigeria, goats are used for customary rites in addition to meat production and religious purpose (Odeyinka and Ajayi, 2004). It has been documented that sheep and goats are the principal domesticated small ruminants in terms of total numbers and production of food and fibre products (Winrock, 1983). This attribute may partly be due to their lower feed requirements compared to cattle, because of their body size (Okunlola, *et al.*, 2010). This, however, allows for easy integration of small ruminants into different farming systems (Hirpa and Abebe, 2008).

Traditionally, sheep and goats have served as means of ready cash and a reserve against economic and agricultural production hardship (Hamito, 2008). In temperate zones, goats are kept often as supplementary animals by small holders, while commercially cows or buffaloes are kept for milk, cheese and meat; and sheep for wool and meat production (NDD, 2004). Okunlola *et al.* (2010) reported a similar trend in Tropical Africa where a majority of small ruminants is owned by individuals or families in rural areas and the number per group is small. Small ruminant animals contribute significantly to the economy of third world countries, for example, about 50% of the sheep and over 80% of the goats of the world are found in the third world countries (Ademosun, 1973). The world population of sheep and goats has been estimated as 1,130.8 million and 468.8 million respectively (FAO, 1982). According to Ademosun (1973), Africa has 16.3% of the sheep and 31.7% of the goat population. Within Africa, the centres of concentration of sheep population are Ethiopia, Morocco,

South Africa, Somalia, Kenya and Sudan. The sheep and goat breeds in Nigeria are meat producers that have adapted to the various ecozones in which they are found. According to FAO (1982), goats contribute 16.0% and sheep 5.0% of total domestically produced meat in Nigeria, which has been estimated at 813,000 tonnes annually. Furthermore, these small ruminants produce skins that can feed the local leather industry. Sheep and goat skins have been estimated at 7,500 tonnes and 20,400 tonnes annually, respectively (FAO, 1982).

The Cross River Rain Forest Zone of Nigeria is located in the tropics with abundant population of the West African Dwarf goats and sheep respectively. The animals are compact and able to expose large surface area per unit weight in order to dissipate heat. They have been reported to be resistant to trypanosomiasis (Ademosun, 1973). The production of small ruminant animals in the Cross River Rain Forest Zone is still at the subsistence level via the local extensive/ free range system. The production of sheep and goats in this zone is yet to attain a level at which it can adequately meet the animal protein demand of the people of the area. The potentials of these animals have not been fully explored by livestock farmers and Government livestock establishments. Hence, the objective of this review is to provide relevant information on the benefits derivable from sheep and goats production in Cross River Rain Forest Zone of Nigeria.

COMMON BREEDS OF SHEEP AND GOATS IN CROSS RIVER RAIN FOREST ZONE:

Southern Dwarf Sheep: A hardy little animal common throughout the coastal areas of lat.14⁰N. The average height at withers is approximately 40 – 60cm, with a body weight range of 20 -30Kg (Phillips, 1977). The WAD sheep is kept mainly for its mutton. The sheep is also called the forest dwarf sheep. It has a coat colour of white, white mixed with black, short fairly fine hair and a long thin tail.

Southern Dwarf Goat: This breed corresponds closely to the distribution of dwarf sheep. It has characteristic short legs and 'blocky' body, very hardy, good meat and prolific, frequently producing twins or triplets (Phillips, 1977). This breed is about 50cm in height and 20-30 Kg in weight, tending to be larger towards the savanna zone. Growth rate and milk yield are very low, it is kept for meat production. The breed is well adapted to humid environment and very resistant to trypanosomiasis.

Other Breeds of Small Ruminants brought into the Zone as Trade Animals from Northern Nigeria:

The West African Long –Legged Sheep (Uda/ Ouda) or Bororo: This breed is a Fulani sheep of Northern Nigeria, Chad and Cameroon. Its height at withers is approximately 70 – 100cm and body weight of 30 -50Kg upwards. It has a black head with white shoulders. Another breed includes the Bornu and intermediate size Y'ankassa.

Sokoto Goats or Maradi: This breed is found in Nigeria and Niger. It is a small fine goat famous for its skin. Coarse red / brown goats of this type are found in Kano (Kano brown). Others are Sokoto red, Bornu white and Maiduguri roan (a good milker). They have height up to 65cm with an average weight of 20 – 25Kg.

MANAGEMENT SYSTEMS:

The major management systems of these small ruminants are Extensive / free range, Intensive and Semi – intensive systems.

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 (Weaver, 2005).

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.

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 BENEFITS OF SMALL RUMINANT ANIMAL PRODUCTION:

Milk Production: The nutritional merits of milk are indicated by the fact that daily consumption of milk furnishes an average man with approximately one –half of protein, one – third of vitamin A, ascorbic acid and thiamine, fat, calcium, phosphorus, riboflavin; one –fourth calories and all the minerals with the exception of iron, copper, manganese and magnesium needed daily (Campbell and Marshal, 1975). Milk is obtained from cows, sheep and goats, buffaloes, camels; etc (Ochepo and Momoh, 2010). The same authors also stated that, the most predominant milk is that from the cow. However, milk from sheep and goats has been accepted in most parts of the world, especially in the developed countries as an alternative to cow milk and their contribution stands at 46% of the world total production of 7.3million tonnes for sheep and 40% of the total world production of 7.2million tonnes for goats in both the tropics and sub –tropics. In the Cross River Rain Forest Zone and indeed Nigeria as a whole, the use of cow milk is common and production is insufficient to meet consumption needs either as fresh milk or fermented milk (Nono) (Joseph and Olafade, 1999).

According to Jennes (1980), goats produce more milk compared to cows and other ruminants, because of better feed utilization efficiency, higher lactation persistency, mammary tissue comprising of greater proportion of the body weight and a more pronounced milk ejection reflex. Goat and sheep milk production is not popular in Nigeria; many households keep goats and sheep for other economic gains and not for milk, as such cultural practices are not common.

Nutritional Importance of Goat Milk:

Extant literatures have shown that goat milk is rich in basic food nutrients. It has been reported that goat milk contains more β – casein and less α – casein than cow milk, with a higher production of short and medium chain length fatty acid than cow milk. The fats in goat milk are easily digested, because of their smaller fat globules (Jennes, 1980). Vitamin A levels in goat milk is almost twice that of cow milk. Goat milk has higher medicinal value, high vitamin B content and high digestibility, which makes it helpful in relieving stress and constipation (James, *et al.*, 2005).

The protein content of goat milk is higher than that of human milk in terms of total calories. The protein differs in composition and in kind, but the total amino acid profile is similar (Jennes, 1980). The essential amino acids of goat milk are slightly in excess of infant requirement (Ochepo and Momoh, 2010). Goat milk is adequate for infants in essential fatty acids, with linoleic acid providing about 1% of total calories. The milk is rich in minerals (calcium and phosphorus) and vitamins (C and D) which the cow milk lacks (Jennes, 1980). Hence, goat milk can be used for infants as well as post weaning diets for children (Jennes, 1980). According to Thear and Fraser (1986), children and adults who are allergic to cow milk do not react to goat milk. It has also been reported that many adults suffering from migraine and asthma find the problems alleviated when they used goat milk instead of cow milk.

MEAT PRODUCTION:

Sheep and goats are good producers of meat for human consumption. The animals are excellent meat producers in view of their short generation intervals and the absence of religious taboos associated with their meat. Goat meat is called chevon, while that of sheep is called mutton. Both meat types are rich sources of protein and can help bridge the gap of protein malnutrition among consumers in Cross River Rain Forest Zone.

According to Acharya (1988), liveweight constitutes an important economic trait in meat animals. The Y'ankassa sheep has been reported to be superior to the WAD sheep, which is indigenous to the rain forest region in terms of yearling weight, liveweight productivity per animal and annual rate of return (Adu and Onwuka, 1991). Furthermore, the Maradi goat (common in Northern Nigeria) has been reported to record better performance in the dry season relative to the WAD goat (in Southern Nigeria), due to the physiological characteristics of Maradi goats as savanna animals showing a remarkable feature of water economy (Ikeobi and Faleti, 1996). Maradi goats have longer limbs and generally larger trunks than the WAD goats and so would be expected to carry more flesh (meat). Ebozoje (1992) described the Maradi as a large, fast growing, early – maturing meat breed.

CONCLUSION & RECOMMENDATION:

The review has been able to provide reasonable documentary facts to support and encourage the production of small ruminant animals in Cross River Rain Forest Zone in particular and Nigeria in general. The production of

goats and sheep will provide meat, milk, skin and wool for the farmers and a good source of revenue to the State Government.

In view of the economic merits associated with sheep and goat production coupled with the availability of local feedstuffs in the Zone, the local farmers should be provided with loan facilities for commercial production of small ruminant animals via the intensive system. The local breeds of WAD sheep and Goats should be upgraded by experts in the zone for optimum productivity.

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