SEASONAL PERFORMANCE AND FEEDING CHARACTERISTICS OF SOKOTO RED GOATS

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ABSRACT

The study was conducted to investigate seasonal performance and feeding characteristics of sokoto red goats in Kwargashe village, Lala District, Gombi Local Government Area of Adamawa State. Data on seasonal performance and feeding behaviour of animals were generated through the use of scale, oral interview of goat producers and visual observation. The results indicated that, there was significant difference ($P<0.05$) in the monthly performance of the animals. Weights of animals in the months of January, October, November, December; May and April did not differ significantly ($P>0.05$). There was a very high significant difference ($P<0.01$) in seasonal performance of animals, but there was no significant difference ($P>0.05$) in performance of animals in respect to management systems practised by farmers in the study area. Animals had better performance in early wet season (April, May and June) and least performance in early dry season (October, November and December). Goats were observed to be intelligent, scavengers, to browse (rather than graze) more than any other domesticated ruminant, to have high tolerance for bitter pants, to prefer shorter grasses than taller ones, are uncommonly curious and alert and can assess and take advantage of new situations surprisingly quickly; they are daring climbers and jumpers, security conscious and prefer high places where they can observe their surroundings. Goats hate confinement, reject any plants with scent of their own urine or faeces, do not like rain, dew, puddles or mud. Goats were observed to be so destructive and unique in nature, ruminate in a semi-somnolent (half sleeping) state and random noises can cause rumination to go off. Goats perform better during early wet season because at that period they were allowed on free range which gave them opportunity of exhibiting their scavenging nature and selective feeding behaviour.

Keywords: Seasonal Performance, Feeding Characteristics, Management, Sokoto Red, Goats.

INTRODUCTION

In the traditional feeding systems in tropical countries, the native grasses, legumes and some foliages are the main feed resources for ruminants. Foliages from trees and shrubs are important feeds for grazing and browsing animals and often contain appreciable amounts of nutrients that are deficient in other feed resources (Komwihangilo *et al.,* 2001). Goats have a habit of selecting their feed carefully when eating and are considered to be agile feeders (Dumont *et al.,* 1995; Ngwa *et al.,* 2000). According to Steele (1996) goats are continuously searching for feed and are more satisfied when they have a whole range of different plants available including trees, shrubs and grasses. The anatomical characteristics of goats such as having small mouths and split upper lips, enable them to select even very small parts of a plant or between and amongst thorns. Goats are characterized as generalized feeders since

they adapt their choice according to what is available. However, goats are also considered to be very fastidious and even when having a very large selection to choose between they will only consume the most nutritious feed available (VanSoest , 1982 and Fajemisin *et al.,* 1996).

Steele (1996) reported that shoots and leaves are preferred to stems when goats are allowed to select. Keskin *et al*. (2005) showed that goats can spend 26.6 % of their time eating (383 minutes in 24 hours). There are many factors which are important for animal selective behaviour, one of which is method of presentation of feed. Pok (2003) and Van *et al*. (2005) suggested that the method of feeding by hanging foliages was the best way to improve feed intake and eating rate. Knowledge of feeding behaviour is of fundamental importance in management of animals, especially with regard to the determination of opportuned feeding strategies and the type and quantity of supplements to distribute (Claps *et al.,* 1997). Animal feeding behaviour has been the subject of numerous studies and there are a number of explanatory theories regarding the principles of herbage selection by grazing animals (Dumont *et al.,* 1995). The objectives of the study was to investigate the seasonal performance and feeding characteristics of sokoto red goats in relation to management systems practiced by farmers in the study area. This may possibly highlight the areas of possible intervention.

MATERIALS AND METHODS

The study was conducted in Kwargashe Village, Lala District, Gombi Local Government Area of Adamawa State, Nigeria for a period of twelve (12) months (from January to December, 2009). Data on seasonal performance and feeding characteristics of animals were generated through the use of scale, oral interview of goat producers and visual observation. Weights of sixteen (16) animals between 3 and 4 years old were obtained at early hours of the day before feed and water were offered. Data were grouped into months, seasons and management systems (free range and confinement). The seasons were early dry (October to December), Late dry (January to March), early wet (April to June) and Late Wet (July to September). All data generated were subjected to Analysis of Variance (ANOVA) and where differences were observed, means were compared using least significant difference (LSD) according to (SAS, 1987).

RESULTS AND DISCUSION

The results (Table 1) indicated that, there was significant difference ($P<0.05$) in the monthly performance of the animals. Weights of animals in the months of January, October, November, December; May and April do not differ significantly ($P>0.05$). There was high significant difference ($P<0.01$) in seasonal performance of animals. The animals had better performance in early wet season (April, May and June); the goat farmers interviewed and physical observation conducted indicated that during this period all crop producers have completed harvesting their farm produce, new crops are yet to be planted and animals were allowed on free range. This gave animals an opportunity of scavenging and feeding from crop residues, kitchen waste, left over food, dry human faeces, picking from rubbish or

dustbins etc as can be seen in Tables 1, 3 and Figs. 1, 2, 3 and 4. The least performance was in early dry season (October to December). During this period, crop farmers were expecting harvest from their farm lands, animals were still tethered and forages and browse plants were almost dried out with little or nothing to cut and carry to animals (Figure 5).

There was no significant difference ($P>0.05$) in the performance of the animals in respect to management systems practised by the farmers in the study area as shown in Table 2. The slight difference witnessed was because of phobia for high humidity and tethering during cropping season which restricted animals from exhibiting their natural feeding behaviours with regards to choice of feeds and scavenging nature and not the availability of forages that matters. Tethering deprived them from selecting varieties of feeds and are therefore, forced to consume any feed offered to them which may be one type of browse plant. This lack of choice makes them lose weight despite high quality and quantity of forages, see Figure 5. Furthermore, goats reject any plant or materials with scent of their own urine or faeces and this limits their feed intake. If forced to consume contaminated herbage they become very susceptible to diseases. It was also observed that goats spend a lot of time walking around and reaching up looking for the tastiest and most nutritious morsels. This is supported by Steele (1996) who reported that goats are continuously searching for feed and are more satisfied when they have a whole range of different plants available including trees, shrubs and grasses to select from.

Other feeding characteristics observed was that goats browse (rather than graze) more than any other domesticated ruminant. They select the most nutritious parts of plants and leave much waste. This also agrees with the findings of Dumont *et al.* (1995) and Ngwa *et al.* (2000) who reported that goats have a habit of selecting their feed carefully when eating and are considered to be agile feeders. They have high tolerance for bitter tastes and so they enjoy bark, leaves and branches. Goats prefer a varied diet with lots of brush and weed species that have higher protein and mineral content and have difficulty with one sided diets where nutrients are unbalanced (Dumont *et al.,* 1995). The findings also revealed that, goats prefer shorter grasses than taller ones because of their mouth parts; they have only lower incisors which help in cutting foliage. Other anatomical characteristics of goats include small mouths and split upper lips that enable them to select even very small parts of a plant or between and amongst thorns. This also agrees with the report of VanSoest (1982) and Fajemisin *et al.* (1996) who made similar observations.

The goats were observed to be uncommonly curious and alert and can assess and take advantage of new situations surprisingly quickly. Goats based on the findings are daring climbers (Figure 4) and jumpers and prefer high places where they can observe their surroundings. Goats are well adapted to limited water intake this is because of their small body sizes and if they are cool enough they can sometimes get adequate amounts from herbage. However, lactating goats need lots of water (Dumont *et al.,* 1995). However, goats were also observed to be very fastidious and even when having a very large selection to choose from, they will only consume the most nutritious feed available. It was observed

that goats do not like rain, dew, puddles or mud. They are otherwise, hardy animals that whether heat and cold will not affect them much if they are provided with a well constructed shed (Claps *et al.,* 1997). It also found that heat is not a problem to goats but high humidity causes stress making them browse less, uncomfortable and susceptible to haemorrhagic septicemia. This situation could be linked to hormonal influence leading to phobia for high humidity. No body could exactly say why goats hate rain or high humidity with passion and whenever it is about to rain, goats were seen to abandon whatsoever they were doing to rush home to seek for shelter. This is an area that further investigation may be required.

Visual observation conducted indicated that goats are so destructive in nature that they can go round the fence several or uncountable times just to gain entrance to destroy or feed on crop plants or grain meant for human consumption. Goats ruminate in a semi-somnolent (half sleeping) state and random noises can cause rumination to go off. Goats establish a social hierarchy in flocks and dominance is established by factors such as relative age, play fighting and horned bearing. Goats were found to be security conscious, attack on one is attack on all. They will withdraw immediately without waste of time and head home in full force whenever there is a sign of danger or were being frightened.

Goats were observed to cry aloud for rescue and disturbing the entire flock and the whole community at large when trapped on something e.g. bucket, iron pot, fence etc. A female goat will cry through out the day without consolation if she lost her young one in accident or disease condition. Those attributes have made goats distinct and unique, more intelligent and reasonable from other ruminants. Goats were found to display high level intelligence such that they are not easily killed by hit and run drivers because they respond fast to any automobile horn and reverse back or cross the road in full force, unlike sheep, pigs and donkeys with resistant responses.

CONCLUSION

It is concluded that, Sokoto red goats perform better during early wet season because at that period they were allowed on free range which gave them opportunity of exhibiting their scavenging nature and selective feeding behaviours. Goats exhibit hatred for feeds with scent of their own urine or faeces which was inevitable in late wet and early dry seasons since they were tethered to prevent them from destroying farm crops. The goats were also observed to be intelligent, climbers, jumpers, stubborn and destructive in nature.

RECOMMENDATIONS

There is need to device ways of improving the performance of goats during late wet season and early dry season. Improved management practices and good feeding strategies could be used to achieve this.

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Table 1. Monthly Performance of Animals (Live weights in kg)

Month	Mean	Month	Mean
Jan.	16.531[e]	Jul.	32.906[c]
Feb.	33.656[bc]	Aug.	26.688[d]
Mar.	35.812[abc]	Sep.	20.969[de]
Apr.	37.500[abc]	Oct.	18.438[e]
May.	39.500[a]	Nov.	17.812[e]
Jun.	39.125[ab]	Dec.	16.344[e]
SEM			2.0647

[a,b,c,d,e] Means in the same column with different superscript are significantly (P<0.05) different from one another
SEM= Standard Error of the Means

Table 2. Performance of Animals (Live weights in kg) with Respect to Management

Mgt	Mean	SEM
Free Range	28.165 [a]	1.1450
Confinement	27.625[a]	1.3548

Means in the same column with same superscript are not significantly (P>0.05) different from each other
SEM= Standard Error of the Means

Table 3. Seasonal Performance of Animals (Live weights in kg)

Season	Mean
Early dry (Oct. to Dec.)	17.531[c]
Late dry (Jan. to Mar.)	28.667 [b]
Early wet (Apr. to Jun.)	38.708[a]
Late Wet (Jul. to Sep.)	26.854 [b]
SEM	1.3751

Means in the same column with different superscript are significantly (P<0.05) different from one another
SEM= Standard Error of the Means

Figure 1. Goats Feeding from Cut Down Browse During the Dry Season

Figure 2. Goats Feeding from Household Left Over Food During the Dry Season

Figure. 3. Goats Scavenging from Farm Crop Residues During the Dry Season

Figure. 4. Goats Feeding from Thorny Shrub Browse during the Dry Season

Figure 5. Tethered Goats Feeding on Browse Offered by Cut -and -Carry during the Wet Season