

EFFECT OF INCLUSION OF HAULM OF DIFFERENT GROUNDNUT (*Arachis hypogaea* L) VARIETIES ON FATTENING YANKASA RAMS

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Abstract

Twelve yearling Yankasa rams were used to study the effect of inclusion of haulm of different groundnut varieties in concentrate diet on fattening performance of Yankasa rams. The rams were randomly allotted into three groups with four rams per group in a completely randomized design. The experimental diets consist of *Digitaria smutsii* hay as a basal diet which was fed ad libitum and concentrates which were supplemented with 10% of groundnut haulm of SN22 and local Variety were offered at the rate of 1% of body weight per head daily. The trial lasted for 90 days. The result of fattening trial indicated that rams on control diets had highest ($p < 0.05$) average weight gain of 65.27g. The highest meat yield (5.50kg) was obtained in animals fed 10% SN22. It can be concluded from the trial that SAMNUT 22 can be included in the diets of Yankasa rams up to 10% for improved fattening performance.

Key words: Local variety, Samnut-22, *Digitaria smutsii*, Yankasa ram

Introduction

The nutrition of sheep is the most important factor affecting performance. Poor nutrition results in low rates of production. It also affects the immune system. It is however an accepted fact during dry season of the year, that grassland in the tropics does not supply sufficient nutrients to stock for greater productivity. Moreover Range is declining due to increase in land use for crop production, overgrazing, urbanization and population increase (Lamidi, 2005).

The fodder production for supplementary feeding is the only long term means for feeding the livestock. Groundnut is one of the dual-purpose legumes that appear more acceptable to the subsistence crop-livestock farmers of Nigeria. Studies have indicated that groundnut hay could meet the maintenance energy requirements of adult goats even at increasing levels of dietary inclusion (Malau-aduli *et al.*, 2003). On the other hand, Animals' scientist are highly concerned by plants breeders' efforts to change the distribution of plant nutrients to the point that the nutritive value of the crop residues becomes too low for animals to obtain even their maintenance requirements. Therefore, the objectives of this study were to evaluate the effect of feeding of haulm of different varieties of groundnut on fattening performance of Yankasa rams.

Materials and Methods

The experiment was conducted at the Department of Animal Science Farm, Ahmadu Bello University Zaria. The Groundnut haulm was cultivated at breeder plot NAPRI, while

Digitaria smutsii hay was harvested within NAPRI. The yearling yankasa sheep rams used in the study were purchased from the open market Zaria. The rams were treated against ecto and endoparasites.

Twelve yearling rams were randomly allotted to three treatments in a completely randomized design. The animals were weighed and housed in an individual pen. The experimental diets consisted of *Digitaria smutsii* hay as basal diet and fresh clean water which were offered *ad libitum* daily at 0800hr. In addition, the animals were offered concentrates which was supplemented with SAMNUT 22 and haulm from local variety of groundnut at 0% (control), and 10 %. The supplement was offered at 1% of each animal's body weight.

Three Rams were randomly selected from each treatment at the end of the fattening trial for carcass analysis. The ram was starved of feed and water overnight to get shrunk body weight before slaughtering. After slaughtering, the external and internal offal were removed, Total lean meat boneless were separated and weighed.

DM, EE, CF and Ash of the dried feed samples were analyzed according to AOAC (2000) procedure. Nitrogen content of the dried feed samples, were determined using Kjeldahl procedure (AOAC, 2000). The acid detergent fiber (ADF) and neutral detergent fiber (NDF) of feed samples, were analyzed according to the procedure of Van Soest (1991). Data collected during the fattening trials were subjected to one-way analysis of variance procedure SAS (1998) to evaluate for significant difference among treatment means. Duncan multiple range tests (DMRT) was used to

compare treatment means (Duncan, 1955).

Results and Discussion

Dry matter Intake and weight gain

The ingredients and chemical compositions of the experimental diets are presented in Table 1. The levels of crude fibre increased with inclusion of haulm of local variety. The results of dry matter and weight change are presented in table 2. The present study showed that the high DMI (1784.9g) was recorded at 10 % SN22 level of inclusion in the supplement, which was significantly ($p < 0.05$) higher compared to the other treatments. The increased DMI of supplement diets containing 10% SN22 could be an indication of increased palatability of groundnut haulm to sheep. This observation is in conformity with earlier work reported by Adebowale (1988), who reported that groundnut haulms supplementation improved palatability, increased minerals and vitamins, better rumen function and has a laxative influence on the gastrointestinal tract (GIT) of Yankasa sheep.

The ADG of 65.27, and 59.72g for control and 10% of SN level of haulm in concentrate diet (Table 2) were statistically ($p > 0.05$) similar but significantly ($p < 0.05$) higher than 34.44g obtained in 10% LV of inclusion. The significant high ADG recorded in rams fed concentrate diet at 0 and 10% SN of groundnut haulms is likely because the diet provided adequate energy and protein, which are critical for the growth of livestock. Growth rate in ruminant is highly correlated with energy and protein intake; with energy intake being the major limiting factor affecting tissues deposition (Leng, 1990).

The carcass dressing percent obtained in the current trial ranged from 42.07 to 43.62% (Table 3) which was slightly lower than 44 % reported by Intesar (2011). The significant high dressing percent obtained by the rams in control diet may be attributed to the higher energy content of the Control diets which is needed for fattening and so, higher body fat deposits and dressing percent.

Conclusion

Based on the results of this study, it can be concluded that SAMNUT22 have feeding value as a fodder for small ruminant and can be included up to 10% in the diets of yankasa rams for improved fattening performance.

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Table 1: Ingredient composition of concentrates containing haulm of two Groundnut varieties for fattening trial

Percent of different varieties of groundnut haulm			
Parameter	TI(10%)	T2 (10% LV)	T3 (10% SN22)
Groundnut haulm	0.00	10.00	10.00
Maize offal	82.92	73.78	75.20
Cottonseed cake	15.07	14.21	12.79
Bone meal	1.50	1.50	1.50
Salt	0.50	0.50	0.50
Total	99.99	99.99	99.99
ME(kcal/kg calculated)	3483	3288	3289
Analysed chemical composition of experimental diets (%)			
Dry matter	87.94	88.13	88.08
Crude protein	11.75	11.92	11.93
Ether Extract	10.10	9.54	9.36
Crude fibre	7.54	11.58	11.51
Nitrogen Free Extract	62.96	59.35	59.67
Acid detergent fibre	35.05	35.27	35.25
Neutral detergent fibre	63.59	61.33	61.5

LV= Local variety and SN22=SAMNUT22.

Table2: The effect of different varieties of groundnut haulm on fattening performance in yankasa rams fed *D smutsii* hay

Percent of different varieties of groundnut haulm				
Parameter	TI(10%)	T2 (10% LV)	T3 (10% SN22)	SEM
TDMI (g/d)	1715.4 ^b	1657.1 ^c	1784.9 ^a	14.17
Initial (kg)	18.75	18.75	19.00	0.17
Final (kg)	24.62 ^{ab}	21.85 ^b	25.37 ^a	0.19
Weight change (Kg)	5.87 ^a	3.10 ^b	4.37 ^{ab}	0.12
ADG(g/d)	65.27 ^a	34.44 ^b	59.72 ^{ab}	1.39
FCE DMI/ADG (g)	26.28 ^a	48.11 ^c	29.88 ^b	0.02

^{abc} Mean values with different superscripts within a row differ significantly ($P<0.05$) SEM standard error Means, LV= Local variety and SN22=SAMNUT22.

Table3: The effect of different varieties of groundnut haulm on carcass composition values in Yankasa rams fed *Digitaria smutsii* hay as basal diet