

THE EFFECT OF FEEDING COMPLETE RATIONS COM- PRISING DIFFERENT LEVELS OF GROUNDNUT HAY ON PERFORMANCE AND CARCASS CHARACTERISTICS OF SUDAN DESERT LAMBS

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SUMMARY

Eighteen entire Sudan Desert Lambs 4 - 6 month old were entered in a fattening trial for 70 days at an initial liveweight of 20.9 i 1.4 Kg. They were fed on rations which contained either 45% (group A), 30% (group B) or 15% (group C) groundnut hay. Average daily gain and feed intake were significantly ($p < 0.01$) higher in group A and B compared with group C. The mean values of these were 205, 170 and 120 g. and 1.32, 1.31 and 1.01 Kg, respectively. Feed conversion ratio (FCR) was signi- fically ($P < 0.05$) improved in group A (6.48) compared with group C (8.74). Lambs in group B showed no significant effect for FCR (7.94) to those values in either of group A or C. All carcass parameters were not significantly affected by feeding treatments.

INTRODUCTION

There are abundant agricultural crop residues and by-products in the Sudan which contribute to a large extent to availability of livestock feed- ing stuff of the various crop residues e. g. cereal straws, groundnut hay and hulls,. sugar cane tops and sesame residues assume the greatest im- portance. The current attitudes in sheep nutrition in the country tend to evaluate systematic feeding of roughages, agricultural residues and by-products as components of complete diets. Groundnut is cultivated in many parts of the Sudan and its residues (hay) and by-products (hulls and cakes) are in common use as animal feeding stuff. The objective of this study is to high-

light the benefits of feeding groundnut hay on performance and carcass characteristics of Sudan Desen Lambs.

MATERIALS AND METHODS

Eighteen entire male Sudan Desert Lambs aged 4 - 6 months and weighed 20.9 ± 1.4 Kg, were used in this study. They were divided by weight into three groups of six lambs each which were dewormed and individually housed in pens with free access to water and mineral salt lick. All the lambs were allowed a three weeks period to acclimatize themselves to the environment of the experiment. Three isocaloric complete diets (1.1 MJ/ Kg) containing different levels (45%, 30% and 15%) of groundnut hay with other components were utilized. The composition and chemical analysis of the experimental diets are given in table I. »

Table 1: Ingredients and Chemical composition of experimental diets.

Ingredients	Rations		
	A	B	C
I. Ingredients composition (%)			
"as fed basis":			
Groundnut hay	45	30	15
Sorghum grains (dura)	10	30	45
Cottonseed cake	35	30	20
Wheat bran	10	10	20
Total	100	100	100
II. Chemical composition (% of DM):			
Dry matter	97.50	95.90	97.40
Crude protein	11.92	12.68	13.93
Ash	16.10	11.37	9.75
Metabolizable energy (MJ/ Kg D. M.)			
"calculated"	10.83	10.61	10.96

N. B. Salt and limestone added at the rate of 10 g/ Kg (as fed) of each ration.

The three groups of lambs were then allocated A, B and C according to diet offered. Each lamb was fed on the respective ration for a period of 70 days. The lambs were individually weighed every week after an over- night fasting. At the end of the experimental period three lambs from each treatment were slaughtered and were prepared for subsequent carcass studies as de- scribed by Mansour (1987). V For statistical analysis all data were subjected to analysis of varaince using completely randomized design with missing data for the loss of one lamb. Further comparison of group means was done by the least signifi- cant difference procedure (Steel and Torrie, 1980).

RESULTS

No health problems were encountered during the trial period except for the sudden death of a lamb from group A. Growth performance results shown in table 2 indicated that the final live weight of the lambs given rations A, B or C were not significantly different. However, lambs in group A and B grew at significantly higher ($P < 0.01$) rate compared with those fed on ration C. The average growth rate and daily feed intake for the lambs receiving rations A and B were nearly similar. Mean values of feed conversion ratio difieredsignificantly ($P < 0.05$) between lambs in group A and C only. Whereas the other mean values (A Vs B and B Vs C) were not significantly different.

Table 2: Feedlot performance of the lambs.

Item	Ration			SE*
	A	B	C	
Number of animals	5	6	6	-
Feedlot period, days	70	70	70	-
Initial body weight, Kg	20.8	21.0	21.0	1.4
Final body weight, Kg	35.3	32.9	29.8	1.65
Average daily gain, g	205 ^a	170 ^a	120 ^b	12.0
Average daily feed intake, Kg	1.32 ^a	1.31 ^a	1.01 ^b	0.02
Feed conversion ratio, Kg feed/ Kg gain	6.48 ^a	7.94 ^{ab}	8.74 ^b	0.52

In this and the following tables means in the same row with different superscripts differ significantly ($p < 0.05$).

SE* : Standard error of means.

None of the slaughter and carcass parameters in table 3 were significantly influenced by any of the feeding treatments. Likewise it is shown in table 4 that all proportional values of the carcass tissue components and lean to bone ratio were not significantly different for group A, B and C;

Table 3: Slaughter and certain carcass characteristics of the feedlot lambs.

Traits	Ration			SE
	A	B	C	
Slaughter weight, Kg	31.48	32.09	28.90	2.93
Gut fill (% of slaughter Wt)	11.86	10.25	09.91	0.59
Empty body weight, Kg	27.74	28.80	26.04	2.55
Warm carcass weight, Kg	13.25	14.00	12.75	0.95
Dressing% (on Sl. Wt. basis)	42.07	44.00	43.73	1.78
Longissimus dorsi area, cm ²	10.50	11.67	09.42	1.48

Table 4: Carcass tissue composition (%).

Item	Ration			SE
	A	B	C	
Total lean	56.41	57.33	56.22	1.20
Total bone	25.51	23.16	24.02	1.54
Total fat	17.65	19.51	19.77	1.28
Subcutaneous fat	10.29	10.95	12.18	0.59
Intermuscular fat	7.39	8.56	7.58	1.13
Lean to bone ratio	2.22	2.51	2.37	0.19

DISCUSSION

The greater inclusion of groundnut hay (45%) in the diet of group A induced best performance for lambs of this group. On average, the growth rate (about 163 g/day), feed intake (about 1.2 Kg/day) and feed conversion ratio (about 7.7) in the present study fall within the limits of records noted in previous studies, (Suliman and El Amin, 1988; El Hag and El Hag, 1981; El Khidir et al, 1983; El Khidir et al, 1984 and Osman et al, 1988). This indicates that groundnut hay was utilized to the same extent by growing lambs compared with other feed sources in some of these studies. The present results of slaughter and body composition did not indicate outstanding differences compared with former reports on Sudan Desert Sheep (Osman et al, 1970; Gaili et al, 1972; Gaili et al, 1977; Osman, 1985; Mansour, 1987 and El Tayeb et al, 1987). It can therefore be concluded that groundnut hay may quite effectively be used in fattening Sudanese Lambs. This feeding material constitutes a potential source of animal feed in the country.

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