BODY MEASUREMENTS OF DESERT SHEEP FED UREA TREATED GROUNDNUT HULLS AND MOLASSES UNDER RANGE CONDITIONS

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Introduction:

- Feed resources available in Kordofan states are mixture of thorny trees, herbs, grasses, agricultural residues (Groundnut hay, sesame stalk and sorghum straw) and agro-industrial by-products (oil seed cakes, groundnut hulls and wheat bran (Yehia, 2002). The nutrient content of this pastures varies greatly during the year especially in the dry season when the nutritive values and amount decline sharply and inadequate for animal productivity(ElHag, 1992). The biological treatment of the groundnut hulls, through ensilage seems to be the best treatment method under the condition of Sudan (Elhag and Hamad; 1983). gth am

- Body measurements of live animals have used extensively for experimental work and in practices as predictor of animal live weight on field bases where no easy access to weighing machine. The ability of the producers and buyers to relate the live animals' measurement to growth characteristics is essential for optimum production and value-based trading system.
- Musa (2010) studied the effect of sex and management system on live body measurement and found a positive correlation between heart girth and bodyweight. Mohmed (2004) found that, the measurement of height at wither, body length and back length were significantly greater in ram than in ewe lambs. Average linear body measurements of Hammari subtype lambs of 6 months age were 75.9, 77.3, 52.4, 40.8, 31.9, 19.4, 25.0 and 58.3 cm for highest wither height, heart girth, body length, chest depth, head length, ear length, neck length and tail length respectively (Salah ,2011).

Body weights could be predicted accurately from heart girth, sacral pelvic width, body length, wither height and rump height.(Samuel and Salako 2008).Mohamed (2003) recorded a positive correlation between body weights and both heart girth and height at wither on desert sheep subtype Hammari and Kabashi lambs.

Objective:

The objectives of this study were:
1. To increase the protein content of groundnut hulls by adding urea and ensiling
2. To evaluate the effect of the silage as protein supplement and molasses as energy source on body measurements of desert sheep lambs (Hammari subtype) to solve the problem of feed shortage during summer

Materials and methods:

Duration of the experiment: ninety days in dry summer season (March- May 2010).
Experimental diets: the prepation of the ensilage urea treated groundnut hulls were shown in plate 1&2. The chemical compositions of feed ingredients were given in figure (1) and the experimental feed amounts were shown in figure (2).

Plate (1) Dissolving urea in water

Experimental animals:
o Sixty desert sheep lambs (thirty males + thirty females) of 6 months age and 23.4 kg average live weights.
o The feed adaptation period was 15 days, the animals treated with Ivomec and dipped in diluted Cypermethrine against external and internal parasites and provided with salt lick plus vitamins (VITADIN).
o Then the lambs were divided into three randomly equal groups of twenty lambs (10 males+10 females) according to the experimental feed offered (A, B and C) (figure 2).
o All the animals grazed together in the yard of the of the Station during the whole night and apart of the day 6:00 o'clock p.m. (traditional grazing system in the area)to 10:00 o'clock a.m where kept under shades for rest and lunching of experimental feed

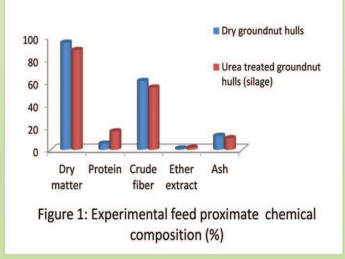

Figure 1: Experimental feed proximate chemical composition (%)

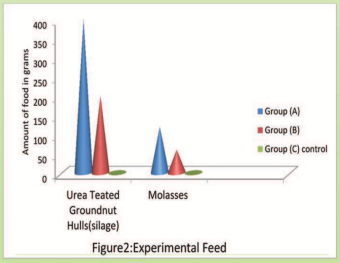

Figure2:Experimental Feed

Experimental animals:

o Sixty desert sheep lambs (thirty males + thirty females) of 6 months age and 23.4 kg average live weights.
o The feed adaptation period was 15 days, the animals treated with Ivomec and dipped in diluted Cypermethrine against external and internal parasites and provided with salt lick plus vitamins (VITADIN).
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Plate 3: experimental animals

- Body measurements were carried out every two weeks by measuring tape according to Owen et al. (1977).
- All measurements were taken in the morning before the animals were fed. Each dimension taken was recorded in centimeter while the weight was recorded in kilogram. The data collected on each animal were analyzed using the General Linear Model Procedure (PROC GLM) of SAS (1999) to evaluate the significance of sources of variation affecting measurements of each animal. The interrelationship of body weights and linear body measurements were estimated by simple correlation and regression (Steel and Torrie, 1980).

Results

- Statistical analyses reveals that the interaction between the feed supplementation treatments and the lambs sex was not significant (P>0.05) therefore the results were taken from the means of the two main effects. (experimental feed and sex).
- Ensiling of the urea treated groundnut hulls and molasses for 30 days increased the protein content of the groundnut hulls from 5.54% to 16.31% (figure 2) and this influenced (P > 0.05) body weight (figure3) and body linear traits in desert sheep lambs (Hammari subtype), as there were consistent increase in all the trait studied as the offered amount of feed increased (figure 4) since the size and shape of the animal is expected to increase.
- The data revealed no significant differences between three experimental treatments groups with exception of heart girth which was significantly (P<0.05) higher in animals in group (A) than that in group (B) and (C) (figure 4).
- Male had significantly (P<0.05) greater head length, neck length, height at wither, heart girth and significantly (P<0.01) greater body length than those of females (figure (5).). Ear length and tail length were not significantly different, but males had got the superior values than that of females.

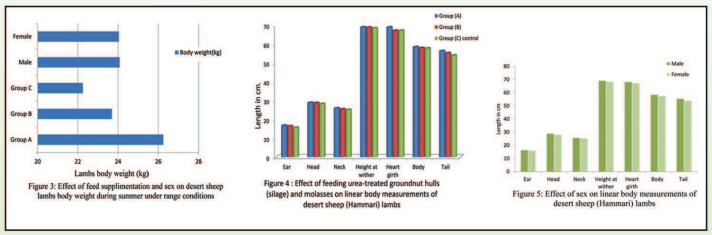

Figure 3: Effect of feed supplimentation and sex on desert sheep lambs body weight during summer under range conditions
Figure 4 : Effect of feeding urea-treated groundnut hulls (silage) and molasses on linear body measurements of desert sheep (Hammari) lambs
Figure 5: Effect of sex on linear body measurements of desert sheep (Hammari) lambs

Table 1: Simple regression models for predicting overall growth from linear body measurements in desert sheep (Hammari) lambs under range conditions

Dependent (Y)	Independent (X)	Regression equation	S.E	R^2 values
Body weight (BDW)	Heart girth (HT)	– 36.54 +0.93X	2.2	0.67
Body weight	Body length (L)	- 20.19+0.83X	2.7	0.57
Body weight	Height at wither (HW)	- 18.68 +0.69X	3.0	0.51
Body weight	Head length (HL)	4.13 +0.92X	3.2	0.32
Body weight	Ear length (EL)	20.21 +0.58	3.8	0.04
Body weight	Neck length (NL)	4.92 +1.1 X	3.4	0.22
Body weight	Tail length (TL)	10.78 +0.24	3.3	0.22

Conclusion:

Feeding urea treated groundnut hulls as protein supplement and molasses as energy supplement to the desert lambs during summer where the grazing pasture was very poor and scarce increased desert sheep (Hammari subtype) body weight. The amount of food offered, 400g silage and 120g molasses was enough for maintenance. Body weight could be predicted accurately from heart girth and, height at wither and body length of desert sheep lambs (Hammari subtype)

Recommendation

We recommend increasing the daily offered urea treated groundnut hulls and molasses feed supplementation for improving the lambs' productivity thus more research is needed.

Acknowledgement:

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