

A note on the utilization of poultry litter in rations of fattening lambs

S. A. ABDALLA, A. H. .SULIEMAN, M. E.. MANSOUR and H. E. AHMED.*

Sheep Research Station, El Huda, El Managil, Sudan.

One of the causes of the increased livestock production cost is the high prices of the feeding stuffs, specially protein concentrates.

In the present paper, the effect of feeding lambs on rations containing different levels of poultry litter (PL) as source of non protein nitrogen (NPN) was examined.

The PL used in the study was collected from a poultry farm managed in the open system using the conventional feeding troughs while the floor of the pens was bedded with sawdust which was cleaned every 2 - 4 weeks.

The PL was accordingly containing the sawdust, poultry exereta and part of the feed splashed off the troughs. The PL collected was incorporated in fattening rations at the rate of 60%, 50% and 40% in treatments A, B and C respectively. No chemical treatment was done for the collected PL apart from being left in store for more than 6 weeks. The chemical analysis of the PI was as the following : DM% = 92.58, CP% = 26.29, EE% = 1.86, CF% = 20.6, Ash% = 17.33, while the constit- uents and chemical analysis of the rations A, B and C were as in table 1.

In this study, 24 Sudanese Desert lambs with initial live-weight of 16.69 kg were dewormed, divided into 3 groups and the lambs were individually housed, watered, fed on one of the experimental diet. The lambs were weighed reularly every fortnight during the course of the study which lasted for 45 days. The feed intake was recorded for each lamb while faeces for di- gestibility studieswere collected from 2 - 3 lambs in each treatment, for 7 days, using locally made canvas bags fixed to the lambs as used by Weston (1959).

Seven 1ambs' suffered from health problems (diarrhoea and pneumonia) during the course of the experiment and 3" of them died

(two as a result of diarrhoea and the third because of pneumonia). All the seven were not considered for performance evaluation.

Table 1: Ingredients and chemical composition of the experimental diets.

Ingredients (as fed):	A	B	C
Poultry litter%	60	50	40
Wheat bran%	20	30	40
Molasses%	20	20	20
Chemical composition (kg/ kg DM) and nutritive values:			
Dry matter %	94.3	94.5	94.0
Crude protein %	19.9	19.4	19.0
Ash %	17.4	14.8	10.4
Energy*	9.8	10.0	11.7

* Energy value was calculated according to the equation:
 $ME \text{ MJ/ kg} = DOM \times 4.4 \times 0.82 \times 4.184$

RESULTS AND DISCUSSION

The performance of the lambs in the different treatments is presented in table Z. The daily and total dry matter intake (DMI) of the different rations showed that animals of group B consumed more feed than any other group and the difference was significant, ($p < 0.05$). The liveweight gain (LWG) of lambs fed ration B was apparently improved which is not unexpected since ration B was consumed in larger amounts compared with the 2 other rations. On the other hand, ration A with the lowest DMI, was found to be having the highest ash content and lowest metabolizable energy (ME); However, the overall DMI (0.9 kg/ day) found in this study is lower than many of the reports shown before e.g. Osman et. al. (1988), Sulieman and El Tayeb (1985) when lambs were fed on conventional diets for fattening. It is also lower than that reported by El Hag and El Hag (1981) who fed poultry excreta to Sudan Desert lambs.

The total LWG for the 3 rations A, B and C was 4.72 kg, 6.4 kg, and 4.87 kg respectively, but the difference was not significant ($p > 0.05$). The overall average growth in this study was about 117 g/ day which was comparable with that reported by Osman et. al. (1988), while Mansour (1987) reported much higher levels of LWG to be 167 g/ day for Sudan Desert lambs.

The DMD for the 3 rations, A, B and C was 64.24%, 66.08% and 75.18%, respectively and the difference was not significant ($p > 0.05$). The over all DMD (68.5%) in this study is higher than that of 53% reported by Holzer and Levy (1976) who fed PL to bull calves.

Table 2 : Performance of Desert lambs fed different levels of poultry litter.

Item	Poultry litter %			SEM	Sig. level	LSD
	60	50	40			
Total DMI (kg)	31.99	45.92	43.67	5.49	*	11.78
Daily DMI (kg)	0.71	1.02	0.97	0.12	*	0.26
Total LWG (kg)	4.72	6.4	4.87	1.97	NS	4.23
DMD%	64.24	66.08	75.18	6.91	SN	15.05
OMD%	74.38	73.15	81.96	5.31	SN	11.46

SEM = Standard error of the mean.

NS = Not significant.

** = Significant at $p < 0.05$.*

LSD = Least significant difference.

It may be concluded from the investigation that poultry litter can be used as a part of lambs rations to reduce the cost of production. However, problems resulting from poor palatability in addition to inadequate energy concentration as well as the increased ash content in such rations should be checked, so that the ration satisfies the animals' requirements and justify the purpose of its use.

ACKNOWLEDGEMENT

The authors would like to acknowledge the help of the P U S of the Ministry of Animal resources, and that of the Director of A P R A. We extend our sincere gratitude to the authority of El Managil Poultry Farm for providing us with the litter. Sincere appreciation is extended to Head Department of the Central Nutrition Research Lab. for doing the chemical analysis of the materials.

REFERENCES

El Hag, M. G. and El Hag, G. A. (1981). Further studies on effect of supplementing groundnut-hulls with dried poultry excreta or cotton seed cake on performance of Sudan Desert sheep. *Wld. Rev. of Anim. Prod.*, 17 (2), 1 - 14.

Holzer, Z. and Levy, D. (1976). Poultry litter as protein supplement for beef cattle fed fibrous diets. *Wld. Rev. of Anim, Prod.* 12 (1), 91 - 95.

Mansour. M. E. (1987). Effect of feeding blood meal on performance and carcass characteristics of Sudan Desert lambs. M. Sc. thesis, University of Khartoum.

Osman, A.G., El Tayeb, A.E., Sulieman, A.H. and Mohamed, T.A. (1988). Effect of sorghum straw alone or in combination with molasses and nitrogen sources in performance of Sudan Desert lambs. *Anim. Feed Sci. Technol.*, 19 , 351 ~ 358.

Sulieman, A.H. and El Tayeb, A_E. (1985). Influence of zeranol implants on feedlot performance, carcass characteristics and nutrient utilization of Sudan Desert sheep. *E. Afric. Agric. For.* 1., 5 (2), 89 - 92.

Weston, R. H. (1959). The efficiency of wool production of grazing Marino ewes. *Aust. J. Agric. Res.*, 10, 865 - 885.