

Short Communication

Effect of Feeding *Lasiurus indicus* Hay Supplemented with Clusterbean Seed Meal on Nutrient Utilization in Sheep

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Lasiurus indicus is a major pasture to sustain grass has a major contribution in the regular dietary of farm animals in arid tract of Rajasthan. Feeding in the form of hay was not sufficient to meet maintenance requirements of sheep (Bohra, 1982) due to low availability of nitrogen and energy in tropical grasses. Clusterbean seed can be used safely in the ruminant rations (Sagar and Pradhan, 1975). Supplementation of clusterbean seed meal to *Ziziphus nummularia*-based diets improved growth of lambs (Thakur *et al.*, 1984). An experiment was planned in which clusterbean seed meal, one of the agro-industrial by-product of guar gum industry, available locally, was supplemented to *Lasiurus indicus* (sewan) hay and compared with locally available roughage to assess nutrient intake and wool growth in sheep.

Nali rams (av. age 370 d and live weight, 29.8 kg) were randomly distributed into two groups of 8 each. The animals were housed individually with free access to drinking water. *L. indicus* hay-based diet was supplemented with clusterbean seed meal (CBSM) (12.5%). This was compared with diet based on sole groundnut haulm conventionally fed during fodder scarcity. The diets were given to animals for 63

days. Feed intake was monitored daily and live weights were recorded at weekly interval. At the end of feeding trial, 7d metabolic trial was conducted to assess feed digestibility. Samples of feeds offered, residues and faeces were analyzed for proximate principles, urine was analyzed for nitrogen (AOAC, 1990). The animals were sheared before and after the trial. Wool samples were cleaned to quantify growth of clean wool. Data were statistically analyzed using randomized block design and student's 't' test (Snedecor and Cochran, 1980).

Chemical analysis revealed that CBSM, *L. indicus* hay and groundnut haulm contained 94.58, 89.99 and 88.71% organic matter (OM); 55.12, 7.29 and 10.15% crude protein (CP); 6.26, 1.32 and 2.61% ether extractives (EE); 6.65, 33.60 and 17.74% crude fiber (CF); 26.55, 47.78 and 58.21% nitrogen free extract (NFE), and 5.52, 10.01 and 11.29% ash, respectively. Clusterbean seed meal was a rich source of protein and could be supplemented to low protein roughage sources. Though it was supplemented to make the diets iso-nitrogenous, but lower ($P < 0.05$) feed intake (Table 1) was observed on diet containing *L. indicus* hay than with groundnut haulms throughout the feeding

Table 1. Effect of diet on biological performance of sheep

Attribute	Groundnut haulm	<i>L. indicus</i> + CBSM
Initial weight (kg)	29.8±0.6	29.7±0.6
Final weight (kg)**	35.5±0.7	32.7±0.9
Average daily gain (g h ⁻¹)*	90±9	47±10
Wool growth (g d ⁻¹)	4.7±0.2	3.9±0.3
Gross N efficiency for wool (%)	4.0±0.3	4.0±0.2
Feed dry matter intake (g d⁻¹)		
Concentrate	—	99.3±6.4
Roughage	1268.8±53.3	696.0±43.9
Total**	1268.8±53.3	795.3±50.2
Water intake (ml kg⁻¹ BW^{0.75})		
Feed**	18.2±1.5	8.5±0.2
Oral**	263.1±8.0	193.0±4.6
Total**	281.3±8.8	201.5±4.7
ml g ⁻¹ DMI	3.0±0.4	3.1±0.1
Water excretion (ml kg⁻¹ BW^{0.75})		
Faeces	70.0±7.4	71.0±4.3
Urine	42.5±10.9	16.4±2.1
Total**	121.4±3.8	87.4±5.2
Nutrient digestibility (%)		
DM**	59.1±2.4	47.8±1.2
OM**	65.5±1.7	50.2±1.1
CP*	63.6±1.4	68.9±1.3
EE	42.3±2.7	40.4±0.8
CF**	51.2±2.0	60.3±1.6
NFE**	71.5±1.7	37.5±2.1
Nutritive value (% DMI)		
DCP**	7.1±0.2	9.5±0.1
TDN**	63.0±1.6	46.8±1.0
Nutritive ratio	7.9	3.9
Nitrogen intake (g d⁻¹)		
Concentrate	—	9.9±0.5
Roughage	24.4±2.1	9.6±0.4
Total	24.4±2.1	19.5±0.8
Nitrogen excretion (g d⁻¹)		
Faeces**	8.8±0.6	6.1±0.4
Urine	3.5±0.4	3.5±0.2
Total**	12.3±0.5	9.6±0.4
Nitrogen retention (g d ⁻¹)	12.1±1.8	9.9±0.7

**P<0.01, *P<0.05, values differ significantly.