Annals of Arid Zone 24(2) : 109-113 (1985)

NUTRITIONAL VALUE OF *LASIURUS SINDICUS* PASTURE

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ABSTRACT

Nutritional value of *Lasiurus sindicus (Sewan)* pasture in spring (March - April) and autumn (August - September) seasons was studied. Digestibility of all the nutrients was higher in autumn. Digestibility of the crude protein was very low (17.9%) in spring and high (75.1%) in autumn. The intake of crude protein (CP), digestibile crude protein (DCP) and total digestible nutrients (TDN) was higher (124.0, 93.4, 526.4 g/day, respectively) in autumn than that in spring (31.6, 5.9, 266.5 g/day, respectively). No significant difference was however, observed in the dry matter intake in the two seasons. In spring, the *sewan* pasture was poor in DCP and TDN. Protein and energy supplementation should, therefore, be provided to the Marwari ewes for optimum production.

INTRODUCTION

It has been observed (Mali *et. al.*, 1983) that the plane of nutrition of Marwari ewes grazing on natural rangelands, was poor specially during the summer (March to June). The present communication describes the nutritional value of *Sewan* pasture in two seasons i.e. spring (March – April) and autumn (August–September). The nutritive value of this grass under stall feeding conditions has been reported by Karwasra (1966).

MATERIAL AND METHODS

Six Marwari ewes were selected at random from a flock of sheep grazing on the reseeded *sewan* pasture during March, 1982. They were maintained exclusively on grazing for about 8 h/day. Measurements on intake of nutrients and their digestibility were carried out during March and August. A double indicator technique (Krishna *et. al.*, 1981) in which 1. chromic sesquioxide (Cr_2O_3) was used as an external indicator to estimate the faecal output and 2. lignin (Goering and Vansoest, 1970) as an internal indicator to determine the nutrient intake and digestibility was employed. Chromic sesquioxide was fed in filter paper packets in the morning before the animals were put to grazing. Faecal grab samples were obtained in the morning and evening for seven days and were then composited on equal dry weight basis for analysis. Proximate analysis of the feed and the faeces was done according to AOAC (1970), the cell wall constitutents by method of Goering and Vansoest (1970) and the chromic sesquioxide by colorimetric method (Hill and Anderson, 1958). The treatment averages for the two seasons were compared through students 't' test (Snedecor & Chochran, 1968).

RESULTS AND DISCUSSION

The crude protein (CP), digestible crude protein (DCP) and total digestible nutrients (TDN) of the *sewan* grass (Table 1) were higher (16.9%, 12.7% and 67.6%, respectively) in autumn than in spring (4.9%, 0.9% and 42.3%, respectively). These values are comparable to those (Mali *et al.*, 1983) for natural rangeland. The digestibility of all the nutrients was significantly higher in autumn. The digestibility of dry matter (DM), crude protein (CP) and acid detergent fibre (ADF) was very low (30.4%, 17.9% and 19.2%, respectively) in spring and higher (59.6%, 75.1%m and 39.9%, respectively) in autumn.

Intakes (Table 2) of CP, DCP and TDN were significantly higher (124.0. 93.4 and 526.4 g/day respectively) in autumn as compared to those of spring (31.6. 5.9 and 266.5 g/day respectively). Intakes of DCP and TDN were sufficient for a 25 kg ewe grazing in autumn while it was far below the requirement in spring. Even at such a low DCP intake the animals could maintain their body weight. Joshi and Ludri (1970) observed intake of 23.0 g of DCP from a pasture at Pashulok (Rishikesh) in spring and animals maintained their body weight. Requirements of DCP for maintenance has been worked out by Gill and Negi (1971) as 23.0 g/day for adult sheep. It is concluded that the *sewan* pasture is poor in DCP and TDN in spring and animals grazing on such pasture should be provided with additional protein and energy supplement and for obtaining optimum production.

ACKNOWLEDGEMENT

The authors are grateful to the Director, CSWRI, Avikanagar for providing the necessary facilities. The help rendered by Dr. S.P. Sinha, Scientist S-1 (Animal Reproduction) during the experimental work is thankfully acknowledged.

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Table 1. Per cent chemical composition and nutritive value (Dry matter basis) of the ingested forage

Parameter	March-April, 82 Spring	July-August, 82 Autumn
Digestible crude protein	0.9	12.7
Total digestible nutrients	42.3	67.6
Organic matter	88.6	91.3
Crude protein	4.9	16.9
Crude fibre	39.1	31.4
Ether extract	1.0	3.6
Nitrogen free extract	42.5	39.4
Ash	11.5	8.7
Acid detergent fibre	49.4	31.8
Neutral detergent fibre	75.4	69.0
Cellulose	37.7	29.0
Lignin	7.6	3.1

Table 2. Digestibility coefficients and nutrient intake on Marwari ewes grazing on *Lasiurus sindicus* pasture

Parameter	Season Spring 82	Autumn 82
Digestibility Coefficient (%)		
Dry matter	30.4 ± 3.3^{B}	59.6 ± 3.2^{A}
Organic matter	49.9 ± 2.4^{B}	77.1 ± 1.9^{A}
Crude protein	17.9 ± 4.2^{B}	75.1 ± 1.4^{A}
Ether extract	NEGLIGIBLE	NEGLIGIBLE
Crude fibre	75.1 ± 3.0^{b}	89.7 ± 2.6^{a}
Nitrogen free extract	31.3 ± 2.1^{B}	67.9 ± 3.9^{A}
Neutral detergent fibre	40.8 ± 3.7^{B}	63.8 ± 3.6^{A}
Acid detergent fibre	19.2 ± 5.0^{b}	39.9 ± 5.4^{a}
Cellulose	60.4 ± 5.6^{B}	88.6 ± 1.2^{A}
Nutrient intakes (g/day)		
Dry matter	644.3 ± 123.1	732.5 ± 63.2
Crude protein	31.6 ± 6.0^{A}	124.0 ± 10.7^{a}
Digestible crude protein	5.9 ± 2.2^{B}	93.4 ± 8.9^{A}
Total digestible nutrients	266.5 ± 48.1^{B}	526.4 ± 38.7^{A}
Dry matter/100 kg weight	2.71 ± 0.45	3.26 ± 0.36
Dry matter/kg W 0.75	59.8 ± 10.4	79.9 ± 7.4
Digestible crude protein/100 kg weight	24.3 ± 8.4^{B}	414.3 ± 47.4^{A}
Degestible crude protein/kg W 0.75	0.5 ± 0.2^{B}	9.0 ± 1.0^{A}
Total digestible nutrients/100 kg weight	1.12 ± 0.172 kg^{B}	2.33 ± 0.22kg^{A}
Total digestible nutrients/kg W 0.75	24.8 ± 4.0	50.8 ± 4.4
Average body weight	21.5 ± 0.64	22.9 ± 0.89

Figures with different supercripts (Capitals $\angle 0.01$, small P $\angle 0.05$) for a parameter in a line differ significantly.

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