

GRAZING STUDIES WITH RAMLAMBS OF MARWARI BREED ON *CENCHRUS-ARISTIDA* RANGELANDS

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ABSTRACT

Comparative studies on continuous versus deferred rotational grazing system were carried out from August 1978 to July 1983 with ramlambs of Marwari breed on *Cenchrus-Aristida* grass cover at Bhopalgarh. The Average body weight gain was higher in continuous grazing system than deferred rotational grazing system. The forage production did not vary much in both the system of grazing. However, year to year variation in body weight gain and forage yield was due to variation in rainfall.

INTRODUCTION

In arid zone of India sheep husbandry is one of the main stay of local population, as stable agriculture is a gamble due to hostile agroclimatic conditions. The Marwari breed is reputed for its inherent hardiness, good wool and meat production potentials. Domestic animals largely subsist on native rangeland whose forage production usually depends upon the rains which are generally insufficient and also erratic. High grazing pressure on rangelands leads to detrimental effect on rangeland productivity. Das et al. 1963, Ahuja et al. 1970 and Mertia 1984 have reported short term studies on performance of yearling sheep and lambs on rangeland. The present studies were undertaken on the Marwari breed of ramlambs with a view to evolve different grazing techniques in arid regions for better ramlamb production and regeneration of native rangelands.

MATERIAL AND METHODS

Grazing studies were conducted at the Range Management and Soil Conservation Area Bhopalgarh of Central Arid Zone Research Institute during August 1978 to July 1983 to compare the two grazing system viz., continuous controlled grazing (T_1) and deferred rotational grazing (T_2).

Ramlambs of Marwari breed of about 12 months old with average body weight of 18 kg were tried for grazing each year from August 1978, 1979 and 1980 under both continuous controlled grazing (T_1) and deferred rotational grazing treatment (T_2). The animals introduced for grazing in 1980-81 were continued for 3 years. The stocking rate was two ramlamb/ha in both systems. The total experimental area was 24 ha, 12 ha area was kept for continuous grazing and 12 ha was utilized for

deferred rotational grazing system. The deferred rotational grazing area was divided in 4 paddocks of 3 ha each with grazing schedule as following—

- A—Grazing in first fortnight of Aug., Oct., Dec., Feb., April and June.
- B—Grazing in second fortnight of Aug., Oct., Dec., Feb., April and June.
- C—Grazing in first fortnight of Sep., Nov., Jan., March, May and July.
- D—Grazing in second fortnight of sep., Nov., Jan., March, May and July.

The ramlambs were allowed to graze 8 hours daily. The body weight of the animals were recorded at fortnightly interval. Variation in body weight gain under the two system of grazing were analysed by 't' test. The soils of experimental area was sandy loam and grassland cover was of the *Cenchrus-Aristida* type. Forage yield was estimated (Table 1) by harvesting the grasses from 30 and 10 protected quadrates (each of 10 m²) randomly distributed in T₁ and T₂ treatment respectively.

RESULTS AND DISCUSSION

The gain in body weight of lambs under two treatments during 1978-79 to 1982-83 are presented in Table-2. The data reveal that the differences in growth rate between treatments were significant during 1979-80, 1980-81 and 1981-82. During the year 1978-79 grazing of animals was discontinued from february 1979 onward because of fire in the area. Ramlambs introduced in grazing experiment during 1980-81 were continued for grazing upto 1982-83 under both the systems. Therefore in the third year (1982-83), ramlambs registerd marginal gain. This is in confirmity with the earlier results of Ahuja et al. (1970) and Mertia (1984). There was a variation in the growth rate of animals over the season. The growth of the rams during August-September was highest, obviously due to availability of succulent herbage, which have high nutritive value (Ahuja 1966). During October-November, the growth rate continued to be satisfactory presumably because tender shoots of grass continued to come up. With the advance of season during December-January, the grasses dried up which resulted in their poor nutritive value. There was no rain during this period, which has direct influence on the growing forage species, resulted in poor body weight gain (Ahuja 1966).

Table 1. Forage production (q/ha) in paddocks under diffrent grazing treatments and years

Year	Continous grazing paddock	Deferred rotational grazing paddocks					Total	Mean
		A	B	C	D			
1978	6.34	8.32	14.40	12.63	13.86	49.21	12.30	
1979	8.47	7.15	6.00	7.13	6.88	27.16	6.79	
1980	6.13	6.35	4.12	4.30	8.47	23.24	5.81	
1981	1.15	2.80	2.12	1.15	3.63	9.7	2.42	
1982	3.07	3.60	5.27	3.91	3.54	16.32	4.08	

Table 2. Average gains in body weight (kg) of lambs under two treatments in different seasons

Months	Year/Pastoral treatments											
	1978-79		1979-80		1980-81		1981-82		1982-83			
	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂		
August-September	0.74	0.35	4.07	3.77	4.23	4.11	5.46	4.59	1.30	1.28		
October-November	0.33	0.21	2.79	2.70	2.89	2.53	1.96	2.22	0.44	0.34		
December-January	0.07	0.17	1.26	0.69	1.37	1.21	1.40	0.59	-0.46	-0.50		
February-March	*	*	0.98	0.28	0.81	0.61	1.13	0.62	-0.66	-0.58		
April-May	*	*	-1.09	-0.93	0.53	0.45	1.70	2.00	0.29	0.34		
June-July	*	*	1.53	1.70	1.98	1.28	1.60	1.10	0.86	0.76		
	1.14	0.73	9.54	8.21	11.81	10.19	13.25	11.12	1.77	1.64		

*Grazing discontinued because of fire in the area during 1978-79 from February 1979 to July 1979.

During February to May the herbage got completely weathered and reduced in its nutritive value. The intake was often less than the maintenance requirement. The growth rate during this period was also hampered with the occurrence of species viz., *Aristida funiculata* and *cenchrus biflorus*, whose awns and burrs cause great discomfort to sheep (Mertia 1984). The data for this period in 1979-80 and 1982-83 have indicated considerable decline in body weight. During June-July, the animals showed some gains in their body weight, these were due to sprouting of perennial grass due to rains which provided tender green shoots.

Distribution of rainfall and seasonal variability in availability of forage on rangelands seriously affected the body weight. In general continuous grazing was better than deferred rotational system.

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