

## EFFECT OF HOUSING SYSTEMS ON FEEDING AND RESTING BEHAVIOUR OF KANKREJ COWS DURING WINTER SEASON

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Feeding and resting behaviour of lactating Kankrej cows were noted under three housing systems, viz. First group was provided RCC shed (T<sub>1</sub>), second group was kept under Thatched roof (T<sub>2</sub>) and third group was provided Tree shelter (T<sub>3</sub>). Fodder eating time was significantly (P < 0.01) higher under T<sub>1</sub> (262.46 ± 4.42 min.). Significantly higher feeding activity was observed in day time as compared to night in all treatments. Sleeping pattern did not differ significantly between treatments. However, it was significantly (P < 0.05) higher at night as compared to day. Frequencies of defecation and urination did not differ due to treatments but was significantly higher in day. Feeding temperament score was not affected by treatments.

Rapidly depressed feed consumption with increased environmental temperature has been observed (Razdan, 1965). Inadequate housing system, overcrowding and uncomfortable conditions have detrimental effects on animal's feeding and resting behaviour. The heat load on the animals can be reduced by providing comfortable housing and feeding proportion of concentrate in the daily ration (Johnson *et al.* 1963 and Yadav, 1981). Therefore, the present study was undertaken to find out the effect of housing systems on feeding and resting behaviour of lactating Kankrej cows.

### MATERIALS AND METHODS

Eighteen lactating Kankrej cows of almost same stage of lactation, level of production and body weight were selected for present

study. These cows were divided into three groups of six animals each. Each group was randomly allotted to one of the three treatments viz., RCC shed (T<sub>1</sub>), Thatched roof (T<sub>2</sub>) and Tree shelter (T<sub>3</sub>). The experiment was conducted for winter season (October, 2009 to January, 2010) at Livestock Research Station, Sardarkrushinagar. Individual feeding and resting activities were recorded for 24 hours once in a month for winter season. The activities recorded were eating, standing ruminating, standing idle, sitting lying ruminating, sitting idle, sleeping, frequency of defecation, urination and feeding temperament score as given in Table: 1. The collected data were analyzed by standard statistical methods (Snedecor and Cochran, 1994).

### RESULTS AND DISCUSSION

In winter season, cows spent higher time (Min.) in eating fodder in T<sub>1</sub> (262.46 ± 4.42). However, the difference due to treatment was non-significant. It was significantly (P < 0.05) higher in day as compared to night (169.44 ± 2.93, 166.78 ± 3.18 and 156.40 ± 3.37 Vs. 93.02 ± 1.49, 88.92 ± 1.61 and 90.19 ± 1.54 in T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub>, respectively). Standing ruminating time did not differ significantly between treatments. However, it was significantly (P < 0.05) higher in day over night in all the treatments. Standing idle time was significantly (P < 0.05) higher in T<sub>2</sub> (276.50 ± 2.58) and T<sub>3</sub> (275.40 ± 2.33) than T<sub>1</sub> (241.10 ± 2.46). However, photoperiod did not affect it. Sitting lying ruminating time did not showed significant variation between

**Table 1 : Feeding and resting behaviour (Time in different activities in minutes)**

Treatment	Photoperiod	Eating fodder	Standing ruminating	Standing idle	Sitting lying ruminating	Sleeping
<b>WINTER SEASON</b>						
T <sub>1</sub>	Day	169.44 ± 2.93 <sup>a</sup>	128.26 ± 1.89	124.58 ± 1.41	198.24 ± 1.45 <sup>a</sup>	6.8 ± 0.94 <sup>a</sup>
	Night	93.02 ± 1.49 <sup>b</sup>	127.54 ± 1.29	116.52 ± 1.05	150.86 ± 1.81 <sup>b</sup>	9.4 ± 1.07 <sup>b</sup>
	Total :-	262.46 ± 4.42	255.80 ± 3.18	241.10 ± 2.46 <sup>a</sup>	259.10 ± 3.26	16.2 ± 2.01
T <sub>2</sub>	Day	166.78 ± 3.18 <sup>a</sup>	129.24 ± 2.88 <sup>a</sup>	140.43 ± 1.33	99.48 ± 1.45 <sup>a</sup>	7.2 ± 0.17 <sup>a</sup>
	Night	88.92 ± 1.61 <sup>b</sup>	120.96 ± 0.53 <sup>b</sup>	136.07 ± 1.25	140.22 ± 1.53 <sup>b</sup>	9.7 ± 0.91 <sup>b</sup>
	Total :-	255.70 ± 4.79	250.20 ± 3.41	276.50 ± 2.58 <sup>b</sup>	239.70 ± 2.98	16.9 ± 1.08
T <sub>3</sub>	Day	156.40 ± 3.37 <sup>a</sup>	132.42 ± 2.81 <sup>a</sup>	138.68 ± 1.19	94.33 ± 1.43 <sup>a</sup>	6.9 ± 1.01 <sup>a</sup>
	Night	90.19 ± 1.54 <sup>b</sup>	119.98 ± 0.57 <sup>b</sup>	136.72 ± 1.14	140.47 ± 1.66 <sup>b</sup>	8.9 ± 1.19 <sup>b</sup>
	Total :-	246.59 ± 4.91	252.40 ± 3.38	275.40 ± 2.33 <sup>b</sup>	234.80 ± 3.09	15.8 ± 2.20

Contd....

Treatment	Photoperiod	Sitting lying idle	Frequency of defecation	Frequency of urination	Feeding temperament score
T <sub>1</sub>	Day	133.78 ± 1.96	3.30 ± 0.54	2.90 ± 0.18	1.30 ± 0.04
	Night	106.03 ± 0.92	2.39 ± 0.25	2.98 ± 0.10	1.20 ± 0.02
	Total :-	239.81 ± 2.88	5.69 ± 0.79	5.88 ± 0.28	1.25 ± 0.06 (Av.)
T <sub>2</sub>	Day	130.30 ± 1.76	3.02 ± 0.45	3.08 ± 0.19	1.18 ± 0.09
	Night	116.95 ± 0.85	2.16 ± 0.23	3.12 ± 0.13	1.12 ± 0.06
	Total :-	247.25 ± 2.61	5.18 ± 0.68	6.20 ± 0.32	1.15 ± 0.08 (Av.)
T <sub>3</sub>	Day	134.81 ± 1.91	3.06 ± 0.35	3.34 ± 0.19	1.19 ± 0.01
	Night	118.02 ± 0.65	2.92 ± 0.26	3.36 ± 0.05	1.13 ± 0.05
	Total :-	252.83 ± 2.56	5.98 ± 0.61	6.70 ± 0.24	1.16 ± 0.03 (Av.)

N.B.: Means having different superscripts differ in a particular row.

treatments but was significantly ( $P < 0.05$ ) higher at night than day. Sleeping time did not show difference due to treatments but significantly ( $P < 0.05$ ) higher at night over day in all the treatments. Sitting lying idle time for  $T_1$ ,  $T_2$  and  $T_3$  was  $239.81 \pm 2.88$ ,  $247.25 \pm 2.61$  and  $252.83 \pm 2.56$ , respectively. The difference due to treatments and photo period was non-significant.

The detail analysis revealed that eating activity in all the groups was mainly in day time. Sitting lying ruminating, sitting idle and sleeping activities were more in night time. Standing idle time was more in night. Higher feeding activity in day was also observed by Schake and Riggs (1969), Regina Vasilators and Pant J. Wangsness (1980), Varlyakov *et al.* (1988) and Sharma (1999). Kotvas and Vavak (1979), Sharma (1999) and Kataktaalware (2004) also observed almost same activity pattern. Frequencies of defeacation and urination were not affected by the treatments. Feeding temperament score was not affected by treatment or photoperiod.

## CONCLUSION

In winter season, sitting lying ruminating time was significantly lower in  $T_3$ , winter season, it was higher in  $T_1$ . Thus, it can be concluded that cows were better placed under  $T_1$  in winter. Frequencies of defeacation and urination were mostly higher in day time. Feeding temperament score was not influenced by the housing system.

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