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Feeding practices of goat rearers across flock size in North West Semi-Arid region of Rajasthan

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Abstract

The present investigation revealed that Semi stall feeding was adopted by maximum respondents in 80.00 percent households and goats were usually grazed on community pasture land for more than 5 hours daily. Most of the goat rearers have neither protected pasture land nor preserved the tree leaves. The green fodder was offered by 88.34 percent goat rearers. Lopping of trees was a routine practice for grazing. Majority of goat keepers provided 100-200 gm. concentrate prior to milking to their goats and 84.16 percent respondents used cereals like wheat or bajra as concentrate. Maximum goat rearers were not aware to provide mineral mixture and common salt feeding. Significant effect of goat flock size was observed on mode of feeding, grazing site, grazing hours and green fodder provided to different category of animals while other practices like protection of pasture land, preservation of tree leaves, type of green fodder used for feeding, lopping of the trees, feeding of dry fodder, concentrate feeding, type of concentrate feeding fattening ration feeding of mineral mixture and feeding of common salt were not significantly affected by flock size.

Keywords: Goat, flock, rearing, semi-arid, feeding, grazing, pasture, concentrate

1. Introduction

The goat among the other livestock species possesses inherent characteristics to adjust under different climatic conditions. Goat production from centuries has been an integral component of farming system and a primary source of livelihood for poor villagers. Resource poor people on zero input mostly rear goats in India. A major proportion of goat population thrives well in arid and southern peninsular region of the country. They are generally maintained on grazing and feeding of locally available crop residues and agro industrial by products. Feed is the most critical input in production of goats. Goats can consume wide variety of grasses, weeds, leaves, small branches of bushes or trees and crop residues that would otherwise go waste. Goat activity is well suited to rural weaker sections of the society with small land or community based feed resources.

2. Material and Methods

The study was conducted in North-West semi-arid region of Rajasthan. Two Tehsil Khajuwala and Pugal were selected which are situated in North West of Bikaner district. From each Tehsil, four villages were selected randomly and from each village 15 goat rearers were selected thus making a sample of 120 goat rearers. All the goat rearers divided into three category according to their flock size viz. Small holder (1-10), medium holder (11-50) and large holder (more than 50). An interview schedule was developed and pretested to collect relevant information on different aspect of goat feeding practices. The observations on feeding practices of goat rearers were collected through personal interview method. The collected data were tabulated and analysed to draw meaningful inferences.

3. Results and discussion

The overall result (Table1) indicated that maximum goat rearers 80.00 percent adopted semi stall feeding system. These findings are in agreement with results of Pathodiya (2003) [8], Rai and Singh (2004) [10] and Gurjar (2005) [4]. The complete stall feeding and complete grazing system were adopted by 10.83 percent and 9.16 percent goat rearers respectively.

The proportion of goat rearers who adopted complete stall feeding decreased as flock size increased. It was observed that most of goat rearers 90.00 percent grazed their goat on community land while remaining only 10.00 percent goat rearers used their own land for grazing of goats. These findings are in the line of Swarnkar and Singh (2010) [15]. The proportion of goat keeper who grazed their goat on own land decreased as flock size increased. On overall it was revealed that most of goat rearers 79.16 percent sent their goats to grazing for more than 5 hours daily while, remaining 20.83 percent grazed their goat less than 5 hours. Similar findings were also observed by Kumar and Deoghare (2003) [1, 7], Gurjar (2005) [4], Rai and Singh (2004) [10] and Singh *et al.* (2005) [14]. The proportion of goat rearers who sent their animals for more than 5 hours increased as flock size increased while, reverse trend was observed for the goat keepers who grazed their goats less than 5 hours. The results showed that majority of goat rearers 97.50 percent did not protects the pasture land whereas, very few number of goat rearers 2.50 percent protects their pasture land by fencing or boundary wall. The majority of goat keepers 92.50 percent did not preserve the tree leaves while, only 7.50 percent of goat keepers were found to be adopted this type of practice. The findings were in consonance with the report of Gurjar (2005) [4], Kaul (1991) [5], Gokhale *et al.* (2002) [3] and Sharma (2005) [13]. The results (Table.1.) indicated that majority of goat rearers 87.34 percent in study area provide green fodder to their goats. The proportion of goat rearers feeding green fodder to their whole flock, decreased with flock size. It was reported that 27.50 percent goat rearers offered weeds to their goat followed by 25.00 percent monsoon grass, 21.66 percent bajra, and 14.16 percent berseem, respectively. The information collected on lopping of tree for feeding revealed that maximum 85.83 percent goat rearers practiced lopping of the tree while, 14.16 percent surveyed population did not practices lopping of trees. The proportion of respondents who practiced looping of tree increased with flock size. The results on overall basis showed that 78.33 percent of goat rearers were feeding the dry fodder to their goats in the surveyed area while, remaining 21.66 percent of goat keepers not adopted this type of practice. These findings are contradiction with Kaul (1991) [5], Rao (2002) [11], Samanta (2002) [12], Gokhale *et al.* (2002) [3], Kumar and Deoghare

(2003) [1, 7], Rai and Singh (2004) [10], Sharma (2005) [13], Singh *et al.* (2005) [14] and Gurjar (2005) [4]. The overall data showed that most of goat owners 90.83 percent fed concentrate to their goats. These findings are in line with the results obtained by Kumar *et al.* (2001) [6] Rai and Singh (2004) [10] and Gurjar (2005) [4]. The information collected on type of concentrate indicated that maximum goat rearers in 84.16 percent households used cereals like wheat, bajra etc. as a concentrate, followed by 4.16 percent of goat keepers who used cake and 2.50 percent of goat rearers used mixed type of concentrate. In the present finding 9.17 percent of goat rearers did not fed any type of concentrate to their goats. The maximum goat rearers 51.66 percent of surveyed population provided concentrate to their goats prior to milking. The proportion of goat rearers who used to provide concentrate prior to milking gradually increased with increasing flock size while. In the study area, 52.50 percent goat rearers practiced feeding extra concentrate to attain early maturity but 47.50 percent goat rearers did not adopted this practice. The results revealed (Table, 1) that awareness about feeding of mineral mixture was observed only in 2.50 percent goat rearers. Sharma (2005) [13] also reported that mineral mixture was fed by few goat rearers. The lack of knowledge about the importance of mineral mixture and non-availability of mineral mixture in the experimental area may be the reason for not adopting this practice. These findings are in close agreement with the survey report of Raghavan (2002) [9] in Malabari goats at Kolkatta in West Bengal and Gurjar (2005) [4] who surveyed in Mewar region of Rajasthan. The results indicated that 39.16 percent goat rearers used salt rather than mineral mixture feeding while 60.83 percent goat rearers were not aware about feeding of salt with the concentrate. The χ^2 value of table 1 revealed that Feeding practices like mode of feeding (23.6**), grazing site (11.6**), grazing hours (12.83**) and green fodder provided to goat by different category of households (17.16**) significantly affected by flock size while, rest of feeding practices like protection of pasture land, Preservation of tree leaves, Type of green fodder used for feeding, Lopping of the tree, Feeding of dry fodder, Concentrate feeding, *Type of concentrate use*, Time of concentrate feeding, Fattening ration, Feeding of mineral mixture, and Feeding of common salt is not significantly affected by flock sizes.

Table 1: Feeding practices of respondents across flock size

Practices	Households (Flock size)				χ^2 Value
	Small	Medium	Large	Overall	
1. Mode of feeding					
a. Complete stall feeding	12(92.30) (30.0)	1(7.69) (2.50)	0(0) (0)	13 (11.83)	23.6**
b. Semi stall feeding	25(26.04) (62.50)	34(35.45) (85.0)	37(38.54) (92.50)	96 (80.0)	
c. Complete grazing	3(27.27) (7.50)	5(45.45) (15.0)	3(27.27) (7.50)	11 (9.16)	
2. Grazing site					
a. Own land	9(75.0) (22.50)	3(25.0) (7.50)	0(0) (0)	12 (10.0)	
b. Community land	31(28.70) (77.50)	37(34.25) (92.50)	40(37.03) (100)	108 (90.0)	11.6**
3. Grazing hours					
a. < 5 hrs	15(60.32) (37.50)	8(32.0) (20.0)	2(13.33) (5.0)	25 (20.83)	
b. > 5 hrs	25(26.31) (62.50)	32(33.68) (80.0)	38(40) (95.0)	95 (79.16)	12.83**
4. Protection of pasture land					
a. Yes	1(33.33) (2.50)	1(33.33) (2.50)	1(33.33) (2.50)	3 (2.50)	
b. No	39(33.33) (97.50)	39(33.33) (97.50)	39(33.33) (97.50)	117 (97.50)	0.001
5. Preservation of tree leaves					
a. Yes	2(22.22) (5.0)	3(33.33) (7.50)	4(44.44) (10.0)	9 (7.50)	
b. No	38(34.23) (95.0)	37(33.33) (92.50)	36(32.43) (90.0)	111 (92.50)	0.72

6. Green fodder provide to different category					
a. Whole flock	28(48.27) (70.0)	20(34.48) (50.0)	10(17.24) (25.0)	58 (48.33)	17.16**
b. Only milking	6(20) (15.0)	8(26.66) (20.0)	16(53.33) (40.0)	30 (25.0)	
c. Only kid	4(22.22) (10.0)	6(33.33) (15.0)	8(44.44) (20.0)	18 (15.0)	
d. No.	2(14.28) (5.0)	6(42.85) (15.0)	6(42.85) (15.0)	14 (11.16)	
7. Type of green fodder used for feeding					
a. Bajra	11(42.30) (27.50)	8(30.76) (20.0)	7(26.92) (17.50)	26 (21.66)	1.31
b. Berseem	7(41.17) (17.50)	5(29.41) (12.50)	5(29.41) (12.50)	17 (14.16)	
c. Weeds	10(30.30) (25.0)	11(33.33) (27.50)	12(36.36) (30.0)	33 (27.50)	
d. Monsoon grass	10(33.33) (25.0)	10(33.33) (25.0)	10(33.33) (25.0)	30 (25.0)	
e. None of above	2(14.28) (5.0)	6(42.85) (15.0)	6(42.85) (15.0)	14 (11.66)	
8. Lopping of the tree					
a. Yes	30(29.12) (75.0)	36(34.95) (90.0)	37(35.92) (92.50)	103 (85.83)	5.89
b. No	10(58.82) (25.0)	4(23.52) (10.0)	3(17.64) (7.50)	17 (14.16)	
9. Feeding of dry fodder					
a. Yes	30(31.91) (75.0)	32(34.04) (80.0)	32(34.04) (80.0)	94 (78.33)	0.39
b. No	10(38.46) (25.0)	8(30.76) (20.0)	8(30.76) (20.0)	26 (21.66)	
10. Concentrate feeding					
a. Yes	37(33.94) (92.50)	36(33.03) (90.0)	36(33.03) (90.0)	109 (90.83)	0.20
b. No	3(27.27) (7.50)	4(36.36) (10.0)	4(36.36) (10.0)	11 (9.17)	
11 Type of concentrate use					
a. Cereals	34(33.66) (85.0)	33(32.67) (82.5)	34(33.66) (85.5)	101 (84.16)	0.60
b. Cake	2(40.0) (5.0)	2(40.0) (5.0)	1(20.0) (2.50)	5 (4.16)	
c. Mixed	1(33.33) (2.50)	1(33.33) (2.50)	1(33.33) (2.50)	3 (2.50)	
d. None of above	3(27.27) (7.50)	4(36.36) (10.0)	4(36.36) (10.0)	11 (4.16)	
12. Time of concentrate feeding					
a. No.	3(27.27) (7.50)	4(36.36) (10.0)	4(36.36) (10.0)	11 (9.17)	2.66
b. Prior	18(29.03) (45.0)	20(32.25) (50.0)	24(38.70) (60.0)	62 (51.66)	
c. During milking	19(40.42) (47.50)	16(34.04) (40.0)	12(25.53) (30.0)	47 (39.16)	
13. Fattening ration					
a. Yes	17(29.82) (42.50)	20(35.08) (50.0)	20(35.08) (50.0)	57 (47.50)	0.60
b. No	23(36.50) (57.50)	20(31.74) (50.0)	20(31.74) (50.0)	63 (52.50)	
14. Feeding of mineral mixture					
a. Yes	2(66.66) (5.0)	1(33.33) (2.50)	0(0) (0)	3 (2.50)	2.05
b. No	38(32.47) (95.0)	39(33.33) (97.50)	40(34.18) (100)	117 (97.50)	
15. Feeding of common salt					
a. Yes	15(31.91) (37.50)	16(34.04) (40.0)	16(34.04) (40.0)	47 (39.16)	0.07
b. No	25(65.73)(62.50)	24(32.87) (60)	24(32.87) (60)	73 (60.83)	

Figure in parenthesis indicate vertical and #horizontal percentage

* Significant ($P<0.05$), ** significant ($P<0.01$)

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