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Study on cattle breeding and milking practices in relationship to herd size in non-tribal area of Udaipur district of Rajasthan

Shweta Choudhary, ML Gurjar, Padma Meel, Vikas Choudhary and Subha Ganguly

Abstract
The present investigation was conducted in Mavli and Vallabhnagar tehsils of Udaipur district of Rajasthan. The study group included 160 cattle rearers from which were selected randomly from four villages of above two tehsils. It was found that 57.50 per cent of total cattle rearers studied, got conceived their cattle by natural service method and 50.62 per cent of total cattle rearers studied, got inseminated/served their cattle at mid stage of heat. 33.75 per cent of the respondents used pure bred indigenous bull for service. Pregnancy diagnosis of cattle was practiced by 51.87 per cent of the respondents. Results revealed that knuckling (92.50%) was the main method of milking. All the respondents used to clean udder and teats, wash hand before milking and milked their cattle twice a day. None of the cattle keepers followed dry hand milking and sealing of teat canal at the end of lactation.

Keywords: Cattle breeding, milking practices, herd size, non-tribal area, Udaipur, village

Introduction
Livestock sector is significantly contributing to the national economy and its growth rate is increasing. Due to lack of detailed information on existing breeding practices adopted for different categories of livestock, it has not been possible for the policy planners to give full attention to these important aspects of cattle production. An efficient management needs a strong database. Efforts should be aimed to collect and correlate all available information. Few efforts are known to have been made to study systematically the cattle management practices in rural areas. The information available and the notation prevalent on the subject have been based on assumptions, usual observations, experience and reports of some specialists and professional workers. This is hardly adequate to serve as the basis on which valid guidelines for developing programs of introducing improved and scientific management practices and for solving the problems encountered. India is the highest milk producing country in the world with 137.7 million tonnes milk production in the year 2014-15 (Department of Animal Husbandry). But its contribution to international milk market is lower than many countries because our milk quality does not match export standard [1]. Basically milk production depends on four dimensions of animal husbandry i.e breeding, feeding, health care and management practices [2]. Scientific milking management practices could improve total output and quality of milk as well [3].

Materials and Methods
The study was conducted to collect the information on housing management practices adopted by cattle rearers in Udaipur district of Rajasthan. The district comprised of 11 tehsils, out of which only these two selected tehsils Mavli, and Vallabhnagar were Non-tribal and rest nine are tribal. Further, four villages (Gadoli, Garda ki Bhagal, Golwara, Rahmi) from Mavli four villages (Ranchhorpura, Siyakheri, Roopawali, Netawala) from Vallabhnagar tehsilwere identified and from each village 20 respondents were selected randomly. Thus, the entire sample consists of 160 respondents from selected eight villages in two tehsils of the district. The data was collected through personal interview technique from each selected respondent. An interview schedule was prepared with the help of Department of Livestock Production Management, College of Veterinary and Animal Science Navania, Vallabhnagar, Udaipur, District Animal Husbandry Department and experts of the subject.

The respondents were categorized on the basis of herd size of cattle possessed by them. The adult cattle units were calculated as either milch, dry, pregnant cattle or bull assumed one adult unit and heifer and calf will be assume as 0.5 and 0.25 adult unit, respectively and respondents were classified as small (up to 1.5 units) Medium from (1.6 to 4.5 units) and Large (above 4.5 units) group. Six traits i.e. age, education level, herd size, land holding, family size and annual income of respondents were identified and statistically correlated with existing breeding and milking management practices by using Chi Square (x^2) Snedecor and Cochran[4].

Results and Discussion

Table 1: Breeding practices in cattle

S. No	Practices	Small herd	Medium herd	Large herd	Overall	χ^2 value
1.	**Method of breeding**					
a	Natural	23(41.07)	56(70.00)	13(54.16)	92(57.50)	11.409**
b	A. I.	33(58.92)	24(30.00)	11(45.83)	68(42.50)	
2.	**Breeding bull**					
a	Indigenous	12(21.42)	35(43.75)	7(29.16)	54(33.75)	12.223*
b	Cross bred	11(19.64)	21(26.25)	6(25.00)	38(23.75)	
c	Exotic	33(58.92)	24(30.00)	11(45.83)	68(42.50)	
3.	**Heat detection**					
a	Yes	54(96.42)	80(100)	24(100)	158(98.75)	3.761
b	No	2(100)	0(0)	0(0)	2(1.25)	
4.	**Time of insemination/Natural service**					
a	Early heat	28(50.00)	36(45.00)	9(37.50)	73(45.62)	1.087
b	Mid heat	26(46.42)	41(51.25)	14(58.33)	81(50.62)	
c	Late heat	2(3.57)	3(3.75)	1(4.16)	6(3.75)	
5.	**Pregnancy diagnosis**					
a	Yes	30(53.57)	40(50.00)	13(54.16)	83(51.87)	0.227
b	No	26(46.42)	40(50.00)	11(45.83)	77(48.13)	
6.	**Treatment of anoestrous**					
a	Yes	50(89.28)	63(78.75)	20(83.33)	133(83.13)	0.271
b	No	6(10.71)	17(21.25)	4(16.66)	27(16.87)	
7.	**If yes to whom you consult**					
a	Not consult	6(10.71)	17(21.25)	4(16.66)	27(16.87)	0.239
b	Quack/stockman	8(14.28)	16(20.00)	2(8.33)	26(16.25)	
c	VET/LSA	42(75.00)	47(58.75) #	18(75.00)	107(66.88)	

Figure in parenthesis indicate horizontal percentage
*significant ($p< 0.05$). ** significant ($p< 0.01$)

The role of breeding is very important not only for better growth of livestock sector at present but to generate sufficient seed stock of improved germplasm to sustain the growth of livestock products. The present results of method of breeding are in accordance with the results observed by Kumar *et al.* [5], Gadaria *et al.* [6] and Rathore *et al.* [7]. Regarding quality of breeding bulls the findings are in contrast to the findings of Mathur [8] and Singh *et al.* [9]. Regarding pregnancy diagnosis, the results obtained are almost similar as observed by Sabapara *et al.* [10], but in contradiction to the finding of Kumar *et al.* [5] and Rathore *et al.* [7]. Regarding the treatment of anoestrus the present findings recorded in text are well supported by Malik *et al.* [11].

Table 2: Milking practices in cattle

S. No.	Practices	Small herd	Medium herd	Large herd	Overall	χ^2 value
1.	**Method of milking**					
a	Full hand milking	0(0)	0(0)	0(0)	0(0)	NA
b	Knuckling	52(92.86)	73(91.25)	23(95.83)	148(92.50)	
c	Stripping	4(7.14)	7(8.75)	1(4.17)	12(7.50)	
2.	**Stripping at the end of milking**					
a	Yes	56(100)	80(100)	24(100)	160(100)	NA
b	No	0(0)	0(0)	0(0)	0(0)	
3.	Place of milking					
a	Milking at the same place	43(76.79)	56(70.00)	21(87.50)	120(75.00)	3.161
b	At a different & dry place	13(23.21)	24(30.00)	3(12.50)	40(25.00)	
4.	**Frequency of milking**					
A	Twice	56(100)	80(100)	24(100)	160(100)	NA
B	Thrice	0(0)	0(0)	0(0)	0(0)	
5.	**Time & milking interval**					
A	6 o' clock & 12 hours	56(100)	80(100)	24(100)	160(100)	NA
6.	**Clean teat & udder before milking**					
A	Yes	56(100)	80(100)	24(100)	160(100)	NA
B	No	0(0)	0(0)	0(0)	0(0)	

7.	**Wash hand before milking**					
A	Yes	56(100)	80(100)	24(100)	160(100)	NA
B	No	0(0)	0(0)	0(0)	0(0)	
8.	**Change milker**					
A	Yes	18(32.14)	23(28.75)	11(45.83)	52(32.50)	2.461
B	No	38(67.86)	57(71.25)	13(54.17)	108(67.50)	
9.	**Type of milking pail**					
A	Open mouth bucket	56(100)	80(100)	24(100)	160(100)	NA
B	Milking pail	0(0)	0(0)	0(0)	0(0)	
10.	**Cleaning of milking utensils with**					
A	Clean water	36(64.29)	60(75.00)	18(75.00)	114(71.25)	NA
B	Ash & water	20(35.71)	20(25.00)	6(25.00)	46(28.75)	
C	Cleaning agent & water	0(0)	0(0)	0(0)	0(0)	
11.	**Drying off practise**					
A	Yes	56(100)	80(100)	24(100)	160(100)	NA
B	No	0(0)	0(0)	0(0)	0(0)	
12.	**Drying off method**					
A	Abrupt cessation	0(0)	0(0)	0(0)	0(0)	NA
B	Incomplete milking	5(8.93)	9(11.25)	3(12.50)	17(10.63)	
C	Intermittent milking	51(91.07)	71(88.75)	21(87.50)	143(89.38)	
D	Any other	0(0)	0(0)	0(0)	0(0)	
13.	**Wipe to clean udder**					
A	Yes	0(0)	0(0)	0(0)	0(0)	NA
B	No	56(100)	80(100)	24(100)	160(100)	
14.	**Calf allowed to suckle**					
A	Before milking	0(0)	0(0)	0(0)	0(0)	NA
B	After milking	0(0)	0(0)	0(0)	0(0)	
C	Both times	56(100)	80(100)	24(100)	160(100)	
15.	**Milk let down practise after death of calf**					
A	Offer conc. & feed	44(78.57)	63(78.75)	15(62.50)	122(76.25)	3.709
B	Any other	4(7.14)	8(10.00)	3(12.50)	15(9.38)	
C	Teat manipulation	8(14.29)	9(11.25)	6(25.00)	23(14.38)	
16.	**Dry hand milking**					
A	Yes	0(0)	0(0)	0(0)	0(0)	NA
B	No	56(100)	80(100)	24(100)	160(100)	
17.	**Sealing teat canal at end of lactation**					
A	Yes	0(0)	0(0)	0(0)	0(0)	NA
B	No	56(100)	80(100) #	24(100)	160(100)	

Figure in parenthesis indicate horizontal percentage

*significant ($p< 0.05$). ** significant ($p< 0.01$)

The results of present study regarding milking method are almost similar with the earlier findings of Singh and Singh [12], Khupse *et al.* [13], Garg *et al.* [3] and Rathore *et al.* [7]. The results regarding stripping at the end of milking are contrary to the findings of Verma [1], who reported that none of the respondent practiced stripping at the end of milking. The finding of frequency of milking is in line with the reports of Dubey and Kumar [2], but contrary to Sarkar and Pal [14] who suggested three times milking per day. All the respondents cleaned udder and teats and washed their hands before milking. These results are in agreement with the earlier findings of Hazarika and Anand [15], Nataraju and Channegowda [16], Verma [1] and Garg *et al.* [3]. None of the respondents used scientific milking pail for milking. Similar observations were reported by Garg *et al.* [3]. The findings regarding cleaning udder after milking, suckling of calf and milk letdown method after death of calf were similar to the findings of Garg *et al.* [3] and Kumar *et al.* [5] respectively.

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